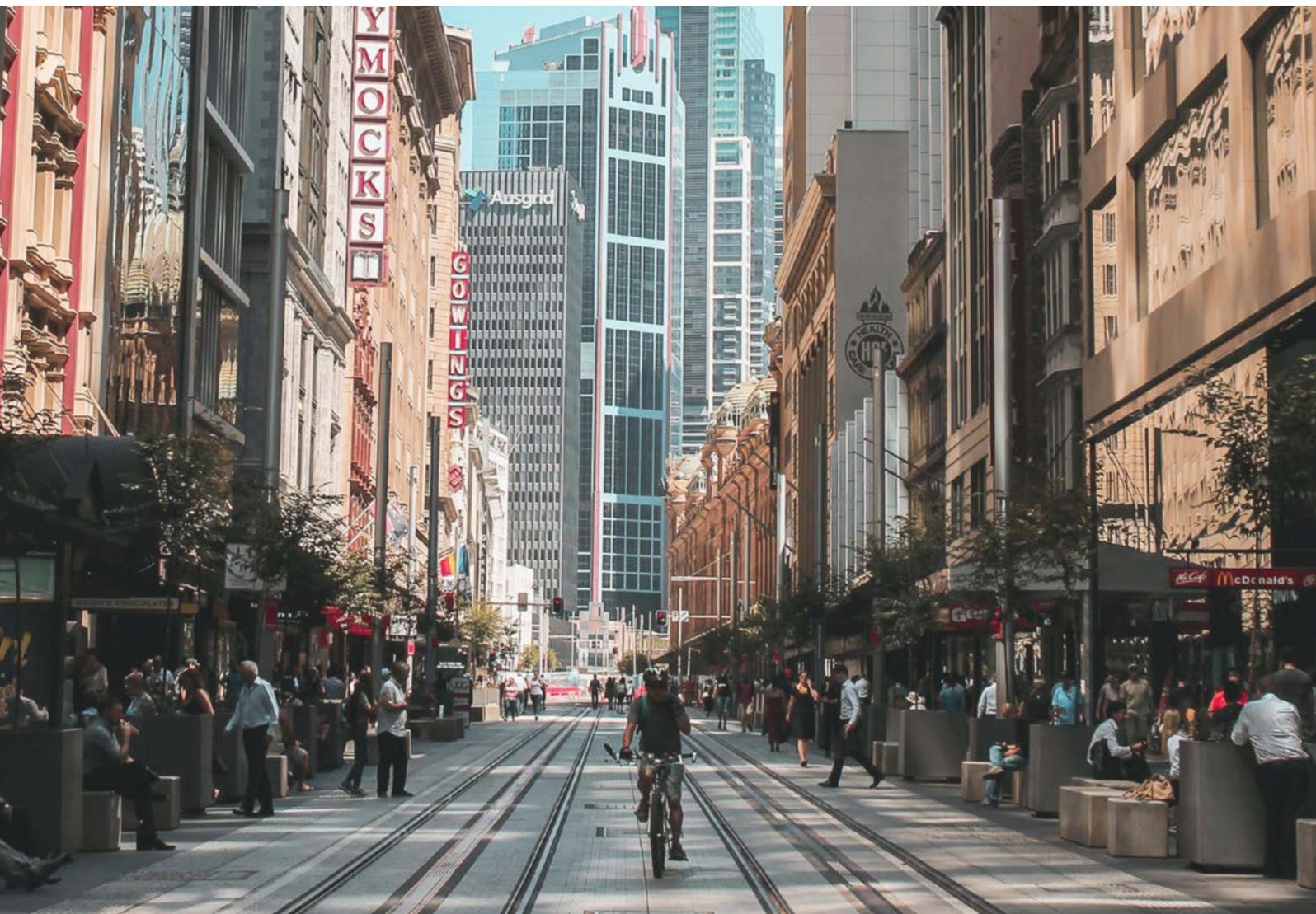


BREATHING SPACE

**WHY AND HOW WE
MUST BUILD BACK
BETTER TO ACHIEVE
CLEAN AIR FOR ALL**



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The Clean Air Fund is funded by:



EXECUTIVE SUMMARY

COVID-19 represents an unparalleled global public health crisis. The toll on our lives and families, businesses, health services, and economies is enormous. Each death is a tragedy, and the effects on our collective wellbeing and financial security will be significant.

It is also directly linked to air pollution. Decades of exposure to toxic air have worsened the health of communities globally. Millions have been left with respiratory and other health problems which leave them predisposed to the most severe impacts of COVID-19, resulting in more hospitalisations and deaths – especially amongst the poorest and most vulnerable. This comes on top of the 7 million deaths already linked to air pollution each year.

At the same time, during the crisis, air quality has improved near instantly as a result of decisive government actions to protect public health through lockdowns.

Attention is now turning to how we can use unprecedented economic recovery packages to trigger a green industrial revolution which protects our health, wellbeing and livelihoods. The rapid responses and high levels of compliance shown in this crisis tell us that we can change our behaviour if the public health imperative and political mandate exist. We owe it to ourselves and future generations to build back better.

This critical window of opportunity demands bold, decisive and informed leadership, and effective global collaboration. With a joined-up, strategic and well-resourced approach to cleaning our air we can improve health, build resilience to future diseases, boost productivity, reduce health costs and help tackle climate change.

People are demanding change. A YouGov poll commissioned by the Clean Air Fund shows at least two-thirds of citizens in diverse locations around the world – Great Britain, India, Nigeria, Poland and Bulgaria – support stricter regulation to tackle air pollution. In most of those countries, support is significantly higher.

These results are backed up by other polling and research on this issue. As lockdowns are eased and economies restarted, people around the world do not want a return to toxic levels of air pollution. That would simply replace one health crisis for another.

To achieve this, we need to better understand the sources and impact of air pollution, raise awareness among the public to demand policy change, and quickly scale up the most effective, innovative solutions. The Clean Air Fund brings together funders, researchers, policy makers and campaigners to make this happen. As well as mobilising at least \$100m in funding for air pollution by the end of 2022, we are helping turn rapid research on the links between the pandemic and air pollution into practical policy solutions.

There is a risk that the world's response is not commensurate with the scale of the challenge facing us. Pausing the implementation of progressive air pollution solutions risks squandering progress to date. Without action we will potentially see the public turn away from public transportation in the wake of the COVID crisis. Equally governments pursuing a quick return to economic growth at the expense of environmental health risk making a short-sighted and costly calculation. Greener, cleaner economic recoveries are jeopardised without sufficient finance and strong signals to the private sector and households.

This briefing therefore draws on the insights and experiences of our community, to distil the evidence about the links between air pollution and COVID-19, the case for change, and risks that mean the change is not inevitable.

On that basis we are calling for governments to:

1. **Develop and resource joint national health and environment strategies, with a specific focus on tackling air pollution.**
2. **Only provide an economic stimulus to industries which make ambitious and measurable commitments to clearing the air.**
3. **Support the repurposing of city streets for walking and cycling.**
4. **Implement and enforce laws and regulations to retain and build on the improvements in air quality experienced during the pandemic.**
5. **Work with other governments to tackle transboundary pollution.**

CONTEXT: AIR POLLUTION AND COVID-19

OUTDOOR AIR POLLUTION IS A MAJOR PUBLIC HEALTH ISSUE AND IS RESPONSIBLE FOR 7% OF GLOBAL DEATHS EVERY YEAR.

More than nine in ten of us breathe air that is harmful to our health.¹ Every year, millions of adults and children die prematurely because of outdoor air pollution. It is an invisible killer: not just because we cannot always see it, but also because most of us are unaware of the widespread toll it takes, contributing to more than 7% of global deaths annually.²

DECADES OF EXPOSURE TO TOXIC AIR HAVE WORSENERD THE HEALTH OF COMMUNITIES GLOBALLY, LEAVING PEOPLE MORE SUSCEPTIBLE TO CONTRACTING AND SUFFERING THE MOST SEVERE SYMPTOMS OF COVID-19, AND MORE LIKELY TO DIE FROM IT.

The more an individual is exposed to air pollution, the greater the chance that they will develop a pre-existing condition which makes them more susceptible to COVID-19, like heart or respiratory disease.³ Those that suffer from these conditions are markedly more likely to be hospitalised from COVID-19.⁴

A strong correlation is emerging between long-term exposure to air pollution and the risk of dying from COVID-19. In Italy, mortality was almost three times higher in the most polluted regions compared to the rest of the country.⁵ In the US, research suggests that for every 1 microgram per cubic metre increase in particulate matter pollution in an area, there was an 8% increase in COVID-19 deaths.⁶ To give a sense of comparison, the average levels of PM2.5 air pollution in New York City alone is on average 9.5 micrograms per cubic metre annually.⁷

AIR POLLUTION PARTICLES CAN CARRY THE COVID-19 VIRUS.

Based on previous research done on similar respiratory viruses to COVID-19, such as the SARS coronavirus in 2003, scientists have been hypothesizing that outdoor air pollution might contribute to the spread of COVID-19 by acting as a carrier for the virus. Scientists have recently discovered COVID-19 on samples of particulate matter (PM10) from an industrial site in Bergamo, Northern Italy.⁸ This evidence is the first to suggest that air pollution could be a carrier for COVID-19, although

more research is needed into whether the quantity and virulence of COVID-19 carried on particulate matter is enough to cause infection.

THE COMBINED IMPACT OF AIR POLLUTION AND COVID-19 HAS TAKEN THE HIGHEST TOLL ON THE POOR.

Nine in ten deaths from air pollution are in low and middle-income countries. Across all countries the poor are disproportionately exposed to air pollution, which is primarily produced by the rich.⁹

Unequal exposure to air pollution means that low income communities went into this crisis with poorer health and a greater incidence of pre-existing conditions. People on lower incomes also have less access to high quality healthcare compared to higher income groups.

For example, in the US, a long legacy of social and racial inequality has left black and Hispanic communities exposed to an average of 56% to 63% more fine particulate matter than they produce.¹⁰ In the initial COVID-19 outbreak, 33% of hospitalised COVID-19 patients were black, despite representing only 18% of the general population in the areas looked at by the study.

OPPORTUNITY: THE CASE FOR CHANGE

WIDESPREAD LOCKDOWNS TO CURB COVID-19 HAVE RESULTED IN DRAMATIC FALLS IN AIR POLLUTION.

Lockdowns shut industries, reduced energy demand and significantly reduced traffic levels, with a pronounced impact on air quality. Concentrations of fine particulate matter fell by 44% in Wuhan, 54% in Seoul and 60% in New Delhi in the days and weeks after lockdowns were introduced.¹² Across 27 countries, levels of NO₂ fell by an average of 29% in the first two weeks after lockdown.¹³ London saw a 26% reduction in Nitrogen Dioxide (NO₂) levels in the month following lockdown compared to the months prior to it.¹⁴

THERE IS GROWING PUBLIC DEMAND FOR CLEAN AIR.

The Clean Air Fund has surveyed the public in Great Britain, India, Nigeria, Poland and Bulgaria,¹⁵ and there is a clear demand for action on air pollution as we emerge from lockdown:

- At least two-thirds of citizens in Great Britain, India, Nigeria, Poland and Bulgaria support stricter regulation to tackle air pollution.
- In Nigeria and India, more than 90% of those surveyed wanted to see air quality improved in their area.
- At least 70% of people surveyed are concerned about air pollution as a public health and environmental issue. In some countries the number was significantly higher.



When we get out of this crisis people will no longer accept breathing dirty air...People will say... 'I do not agree with the choices of societies where I'll breathe such air, where my baby will have bronchitis because of it. And remember you stopped everything for this COVID thing but now you want to make me breathe bad air!'"

President Emmanuel Macron¹¹

FIGURE 1 PERCENTAGE OF RESPONDENTS IN EACH COUNTRY WHO SAY THEY ARE 'VERY', 'SOMEWHAT', OR 'NOT AT ALL' WORRIED ABOUT AIR POLLUTION AS A PUBLIC HEALTH ISSUE.

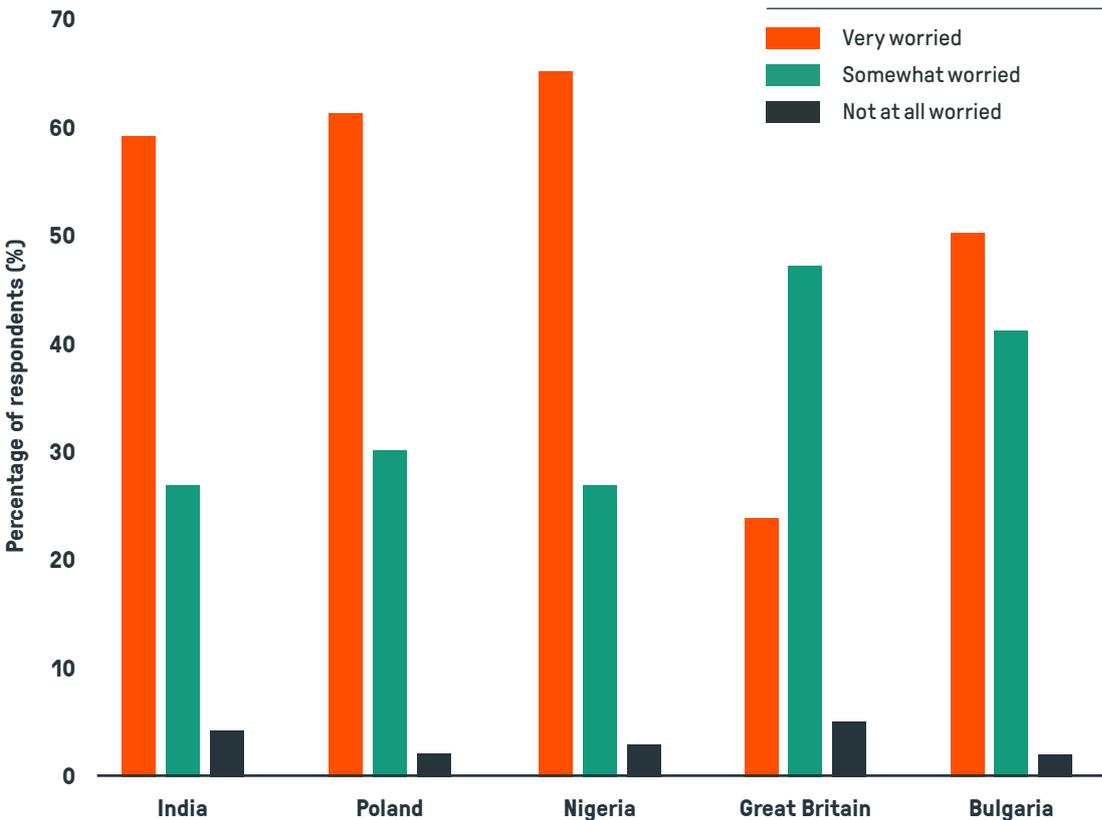
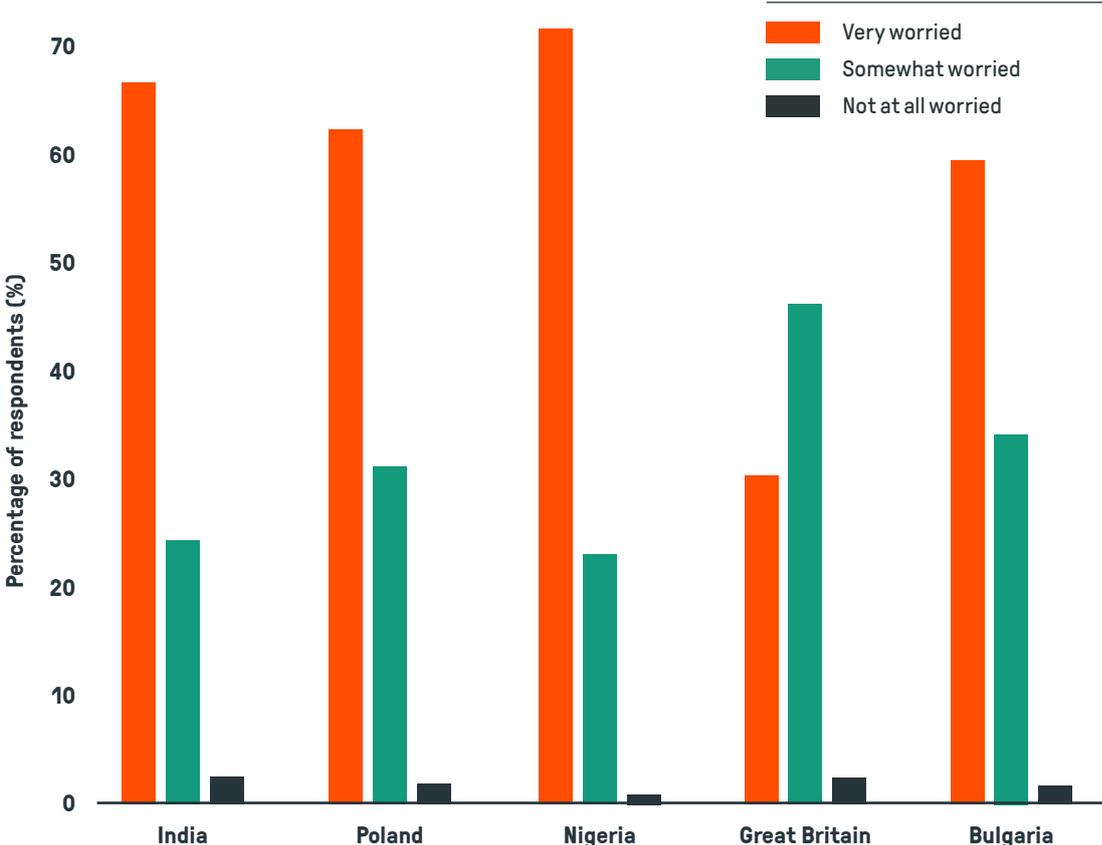


FIGURE 2 PERCENTAGE OF RESPONDENTS IN EACH COUNTRY WHO SAY THEY ARE 'VERY', 'SOMEWHAT', OR 'NOT AT ALL' WORRIED ABOUT AIR POLLUTION AS AN ENVIRONMENTAL ISSUE.

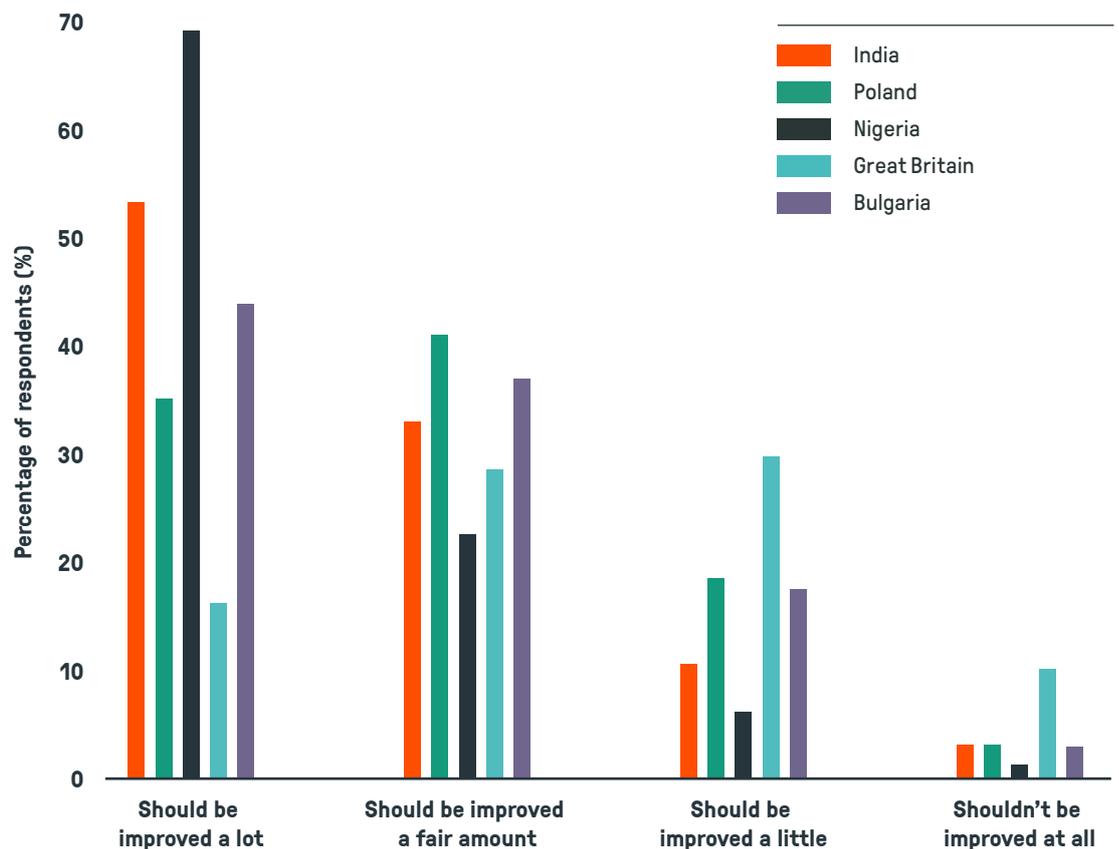


ECONOMIC STIMULUS PACKAGES CAN PROVIDE THE BUDGET TO ACHIEVE CLEAN AIR.

Vast sums of money are being spent in a bid to regenerate economies. This gives policy makers an unprecedented opportunity to reshape markets in ways that protect human health and the health of the planet.

Lessons must be learned from previous pandemic responses, to ensure the poorest communities benefit. An analysis of five recent epidemics found that the policies undertaken to address these outbreaks hurt the employment prospects of people with low educational attainment, while scarcely affecting those with advanced degrees.¹⁶ As Lower income groups are much more likely to be affected by high levels of air pollution, cleaning the air provides an opportunity to ensure the economic stimulus benefits these people most.

FIGURE 3 HOW MUCH RESPONDENTS IN EACH COUNTRY THINK THE AIR QUALITY IN THEIR LOCAL AREA SHOULD BE IMPROVED.



PRIORITISING CLEAN AIR AS WE BUILD BACK WILL PAY FOR ITSELF, MANY TIMES OVER.

The costs of failing to improve air quality are considerable. Air pollution cost \$21 billion in global health expenditure in 2015.¹⁷ If welfare losses are included, the costs run into many trillions of dollars. No economic sector is unaffected. The OECD and World Bank have calculated that tackling air pollution could save us trillions per year, projecting that welfare costs associated with the premature deaths from outdoor air pollution will cost the global economy between \$18–25 trillion dollars in 2060.^{18,19}

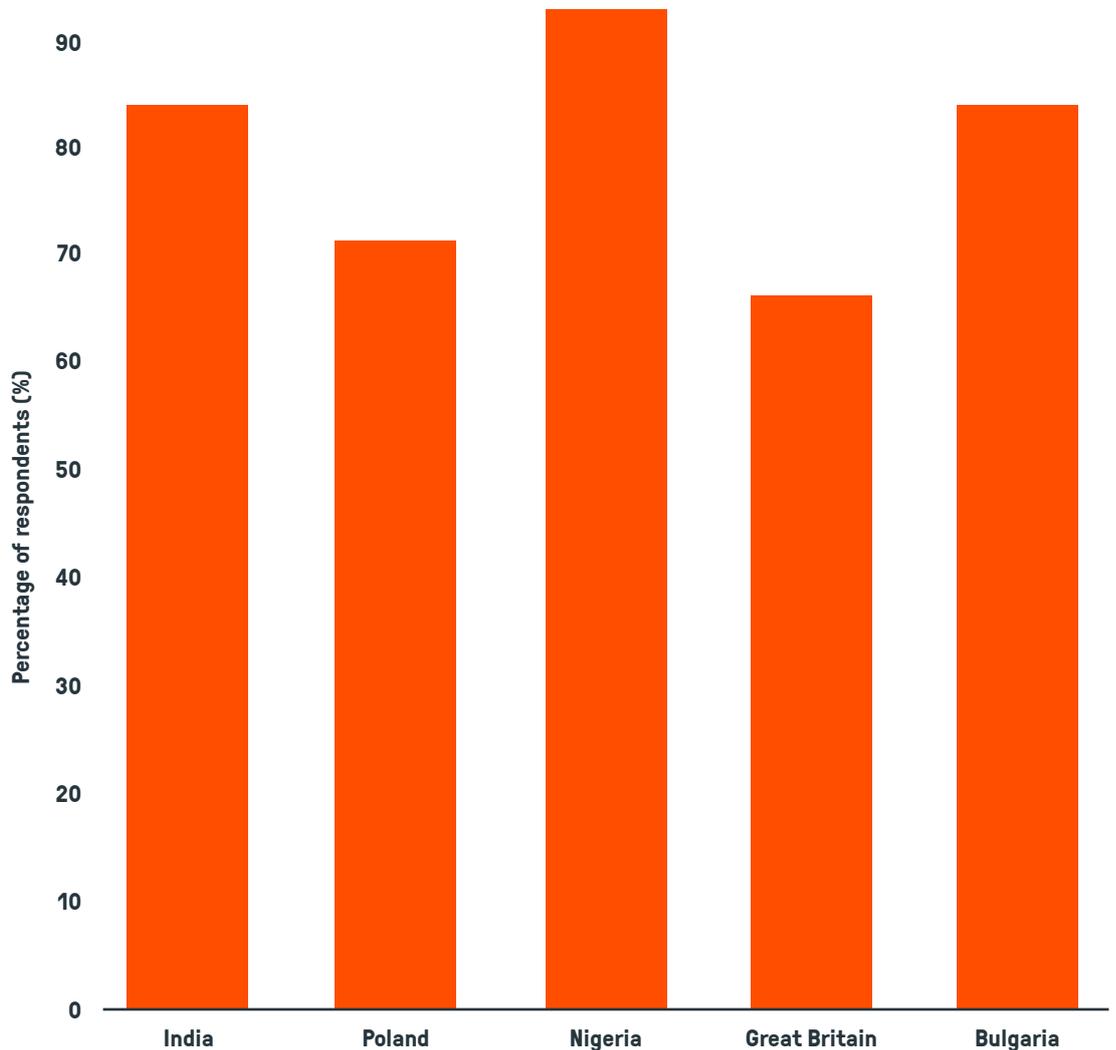
As we build back from COVID-19, the governments that prioritise air quality will have more resilient economies than those that do not.

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FIGURE 4 PERCENTAGE OF RESPONDENTS IN EACH COUNTRY WHO SUPPORT STRICTER LAWS AND/OR ENFORCEMENT OF REGULATIONS ON AIR QUALITY WHEN THE PANDEMIC COMES TO AN END.



RISK: CHANGE IS NOT INEVITABLE



We cannot get out of this crisis with the same levels of pollution. It has to be a green recovery. If we go back to the former economic development that will be creating a massive health problem and a massive economic problem at the same time. We need to avoid the temptation, in the name of the recovery of the economy, to go back to intensive use of fossil fuels or intensive use of cars.”

Dr Maria Neira, Director of the Public Health, Environment and Social Determinants of Health, WHO²⁰

PAUSING THE IMPLEMENTATION OF PROGRESSIVE SOLUTIONS RISKS SQUANDERING PROGRESS TO DATE.

Leading cities around the world were running, or in the process of implementing, vehicle restrictions and clean air zones before the coronavirus hit. Some have temporarily suspended these restrictions and others have delayed implementation. Failure to reinstate these schemes will slow the growth in sustainable transport and risk wasting the progress made in recent years.

THE PUBLIC MAY TURN AWAY FROM PUBLIC TRANSPORTATION IN THE WAKE OF THE COVID CRISIS.

There is also a risk that, unless governments take action to build trust and safety for passengers, the number of people using public transport in cities could be lower than normal after the end of the coronavirus lockdown. This has already been seen in Wuhan, and is projected in other cities too, based on public opinion surveys.

TRADING OFF ECONOMIC GROWTH WITH ENVIRONMENTAL HEALTH IS SHORT-SIGHTED.

In some countries, governments are relaxing environmental regulations in an effort to promote short-term economic growth.^{21,22} This fails to address one of the key lessons of the pandemic – that health and economic prosperity are intertwined.

GREENER, CLEANER ECONOMIC RECOVERIES ARE JEOPARDISED WITHOUT SUFFICIENT FINANCE AND STRONG SIGNALS TO THE PRIVATE SECTOR AND HOUSEHOLDS.

We have seen calls for greener, cleaner recoveries only partially heeded before, including after the financial crisis of 2008. For example, lessons from South Korea’s low-carbon, green response to the Great Recession of 2008 demonstrate the importance of combining long-term financial investments with pricing reforms, in order to achieve significant reductions in emissions.²³

RECOMMENDATIONS: FIVE THINGS EVERY GOVERNMENT SHOULD DO

People have seen that clean air is possible. They are demanding change. Economic stimulus packages provide the opportunity to deliver that change. Cleaning the air will pay for itself many times over.

Governments should take the following five steps as they prepare national stimulus packages, negotiate development assistance for the poorest communities and attend regional and global meetings in the months ahead:

1. **Develop and resource joint national health and environment strategies, with a specific focus on tackling air pollution.**

The COVID-19 crisis has shown us that the sustainability of health systems is put at risk if the upstream determinants of disease, including air pollution, are not seriously tackled in a coordinated way. Health and environment departments must work closely together. This will involve improved monitoring and forecasting of air pollution and air pollution related illness, so that the health sector can predict when spikes in air pollution-related hospitalisations might occur. This will also help policymakers implement short term measures during high air pollution periods to reduce the burden on the health system.

EXAMPLE Integration of health and environment policies.

Recognising the power of inter-ministerial collaboration on cross-cutting issues, health and environment ministries in Africa committed to a joint Strategic Action Plan in November 2018. The objective is to work together for greatest impact, scaling initiatives that protect both the environment and public health. Supported by the United Nations Environment Programme (UNEP) and the World Health Organisation (WHO), this framework includes interventions focusing on air pollution, water contamination, and ecosystem damage. 52 African countries acknowledged the need for this integrated approach in the Libreville Declaration on Health and the Environment for Africa, establishing the Health and Environment Strategic Alliance (HESA) to coordinate action.



To resolve both emergencies, we must work together as an international community. Like the coronavirus, greenhouse gases respect no boundaries. Isolation is a trap. No country can succeed alone... We must act now to tackle the coronavirus globally for all of our sakes – and, at the same time, pursue immediate ambitious climate action for a cleaner, greener, more prosperous and equitable world.”

Antonio Guterres,
UN Secretary General²⁴

2. Only provide an economic stimulus to industries which make ambitious and measurable commitments to clearing the air.

The coronavirus crisis has prompted nations to respond in different ways. Stimulus packages negotiated in the months ahead could allow the acceleration of transition to low carbon economies. However, this will require that bailouts to the private sector do not embolden polluting industries.

EXAMPLE Government strategies to transition to a low-carbon economy.

A prime example of rebuilding the economy post-COVID-19, while remaining committed to sustainable progress and climate change mitigation, is the emergence of the EU's Green New Deal. It aims to reduce carbon emissions by 50–55% by 2030 compared with 1990, and to be net zero by 2050. It will do this by reshaping the economy around sustainable growth and markets. This rounded mix of clear targets, market interventions and support in transitions provides a blueprint for other countries and multilateral organisations to adapt.

3. Support the repurposing of city streets for walking and cycling.

Globally cities are using the impact of the COVID-19 crisis to implement and accelerate large-scale projects to repurpose city streets for active travel. Despite the inevitable pushback from the car lobby, momentum is growing for such measures to last beyond the pandemic.

EXAMPLE Supporting non-motorized transport and the repurposing of city streets.

Not only does non-motorized transport reduce crowding on public transport, helping to prevent the spread of COVID-19, it also improves air quality, tackles global warming, supports commercial activity outside of shops, and is a widely accessible form of public transport globally. Many cities are already embracing these benefits in preparation for a post-COVID world and adjusting their infrastructure accordingly, including Paris, London, New York, Milan, and Bogota to name just a few. Milan's transport recovery programme, the "Strade Aperte", is reallocating 35 km of street space from cars to cycling and walking space, and Bogotá has opened 76km of temporary bike lanes.

4. Implement and enforce laws and regulations to retain and build on the improvements in air quality experienced during the pandemic.

Whilst air pollution levels have fallen considerably during the COVID-19 lockdown, some sources of pollution have remained, and pollution levels have not fallen as much as expected. The onus is on governments to monitor and improve understanding of the trends, and act to protect populations that do not want a return to previous levels of air pollution.

EXAMPLE Implementing new rules to reduce air quality and protect people's health.

During the COVID-19 lockdown, the City of Edinburgh Council banned the burning of garden waste to keep the air clear for people who are self isolating. The new rule was introduced because the Council was not able to collect and centrally compost garden waste during the crisis. Its purpose is to protect the health of citizens with pre-existing respiratory conditions, and people recovering from COVID-19, for whom breathing polluted air is particularly dangerous. About one in five people in Scotland have a pre-existing lung condition and they are especially vulnerable – both to COVID-19 and to polluted air.

5. Work with other governments to tackle transboundary pollution.

Just like COVID-19, air pollution knows no boundaries. While significant action can be taken locally, no country can deal with all of the problem alone.

EXAMPLE Government strategies to transition to tackle transboundary pollution.

Following a manifesto commitment of the ruling party in March, the South Korean government is now developing plans to work with Japan and China to reduce regional air pollution, and is forging global cooperation by driving the establishment of the UN International Day of Clean Air for Blue Skies, on September 7th, 2020. International collaboration is key to South Korea's plan, and this should be mirrored by others in tackling this transnational problem.

ENDNOTES

- ¹ 9 out of 10 people worldwide breathe polluted air, but more countries are taking action. 8 May 2018. www.who.int/news-room/detail/02-05-2018-9-out-of-10-people-worldwide-breathe-polluted-air-but-more-countries-are-taking-action.
- ² Ibid.
- ³ Association between short-term exposure to air pollution and COVID-19 infection: Evidence from China. Yongjian, Zhu, et al. *Science of The Total Environment* (2020): 138704. www.sciencedirect.com/science/article/pii/S004896972032221X.
- ⁴ Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 – COVID-NET, 14 States, March 1–30, 2020. 17 Apr 2020. Center for Disease Control and Prevention. www.cdc.gov/mmwr/volumes/69/wr/mm6915e3.htm.
- ⁵ Can atmospheric pollution be considered a co-factor in extremely high level of SARS-CoV-2 lethality in Northern Italy? Conticini, L. et al. *Environmental Pollution*. 4 Apr 2020 <https://linkinghub.elsevier.com/retrieve/pii/S0269749120320601>.
- ⁶ Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study. Wu, X. et al. Harvard University. MedRxiv. 27 Apr 2020. www.medrxiv.org/content/10.1101/2020.04.05.20054502v2.
- ⁷ Trends in Citywide Regulatory Monitoring: Fine Particulate Matter (PM 2.5) – Annual Average 2001 to 2018. Environment & Health Data Portal. United States Environmental Protection Agency (EPA) Air Quality System (AQS) Data. <http://a816-dohbesp.nyc.gov/IndicatorPublic/VisualizationData.aspx?id=57,719b87,122,ChartOverTime,Citywide,Annual%20Average>.
- ⁸ SARS-Cov-2 RNA Found on Particulate Matter of Bergamo in Northern Italy: First Preliminary Evidence. Setti, L. et al. *Environmental Research*. 24 April 2020. DOI: 10.1016/j.envres.2020.109754.
- ⁹ Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom. Bernes, J.H. et al. *Transportation Research Part D: Transport and Environment*. August 2019. www.sciencedirect.com/science/article/pii/S1361920919300392#!.
- ¹⁰ Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. Tessum, C.W. et al. *PNAS*. 26 March 2019. www.pnas.org/content/116/13/6001.
- ¹¹ FT Interview: Emmanuel Macron says it is time to think the unthinkable. Dodd, D. 17 Apr 2020. *Financial Times*. www.ft.com/content/3ea8d790-7fd1-11ea-8fdb-7ec06edeef84.
- ¹² COVID-19 air quality report 2019 coronavirus pandemic lockdowns result in unprecedented reductions in deadly particle pollution. IQ Air. 22 April 2020. www2.iqair.com/sites/default/files/documents/REPORT-COVID-19-Impact-on-Air-Quality-in-10-Major-Cities_V6.pdf?_ga=2.50065251.456357194.1591278494-1423751653.1591278494.

- 13 COVID-19 lockdowns cause global air pollution declines with implications for public health risk. Ventor, Z.S. et al. MedRxiv. 14 Apr 2020. www.medrxiv.org/content/10.1101/2020.04.10.20060673v1.
- 14 Estimation of changes in air pollution in London during the COVID19 outbreak. Greater London Authority. April 2020. www.london.gov.uk/sites/default/files/london_response_to_aqeg_call_for_evidence_april_2020.pdf.
- 15 A fullbreakdown of the polling results will be published at www.cleanairfund.org/breathingspacesurvey. All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 1,005 British adults, 1006 Bulgarian Adults, 1005 Polish Adults, 501 Nigerian Adults, and 1008 Indian Adults. Fieldwork was undertaken between 22nd May–2st June 2020. The survey was carried out online. The figures have been weighted and are representative of all adults (aged 18+) in GB, Bulgaria, Poland, and India. The data has been weighted to be representative of the online population in Nigeria.
- 16 COVID-19 will raise inequality if past pandemics are a guide. Furceri, D. et al. VOX CEPR policy portal. 8 May 2020. <https://voxeu.org/article/covid-19-will-raise-inequality-if-past-pandemics-are-guide>.
- 17 The economic consequences of outdoor air pollution: Policy Highlights. Organisation of Economic Cooperation and Development (OECD). June 2016. www.oecd.org/environment/indicators-modelling-outlooks/Policy-Highlights-Economic-consequences-of-outdoor-air-pollution-web.pdf.
- 18 The cost of air pollution: strengthening the economic case for action. World Bank and the Institute for Health Metrics and Evaluation (IHME). 2016. <http://documents.worldbank.org/curated/en/781521473177013155/The-cost-of-air-pollution-strengthening-the-economic-case-for-action>.
- 19 The economic consequences of outdoor air pollution. Organisation for Economic Co-operation and Development (OECD). June 2016. www.oecd.org/environment/indicators-modelling-outlooks/Policy-Highlights-Economic-consequences-of-outdoor-air-pollution-web.pdf.
- 20 How air pollution exacerbates Covid-19. Isabelle Gerretsen. Future Planet. 28th April 2020. www.bbc.com/future/article/20200427-how-air-pollution-exacerbates-covid-19.
- 21 Trump administration allows companies to break pollution laws during coronavirus pandemic. Oliver Milman and Emily Holden. The Guardian. 27 Mar 2020. www.theguardian.com/environment/2020/mar/27/trump-pollution-laws-epa-allows-companies-pollute-without-penalty-during-coronavirus.
- 22 China's Air Quality Is About to Get a Whole Lot Worse Because of Coronavirus. Vice News. Alex Lubben. 16 Mar 2020. www.vice.com/en_us/article/bvg39q/chinas-air-quality-is-about-to-get-a-whole-lot-worse-because-of-coronavirus.
- 23 Assessing the effectiveness of the 'Green Economic Stimulus' in South Korea: Evidence from the energy sector. Mundaca, L., & Damen, B. International Association for Energy Economics. 2015. <https://lucris.lub.lu.se/ws/files/5761857/8832015.pdf>
- 24 A Time to Save the Sick and Rescue the Planet. New York Times. Antonio Guterres. 28 April 2020. www.nytimes.com/2020/04/28/opinion/coronavirus-climate-antonio-guterres.html?smid=nytcore-ios-share.

CLEAN AIR FUND

Clean Air is a Human Right.

90% of the world's population – approximately 6.8 billion people – live in places where the air they breathe is damaging their health.

The issue is getting more urgent.

We believe in a world where everyone can breathe clean air.

Help us make it happen.

Interested in joining forces?

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