

# Shining a light on London's air pollution crisis

Using data to drive clean air action  
and protect people's health



“ London has many challenges when it comes to building a fairer, safer and greener transport system. Environmental Defense Fund raised a critical issue around the city’s busiest and most polluted roads, which haven’t been updated in years even though there are more people living and working around them. Working with EDF on a Red Routes event allowed us to bring together key stakeholders to ignite conversation and debate a more strategic approach to lowering traffic pollution, and we saw great ideas and enthusiasm from people who attended.”

**Denean Rowe,**  
*Senior Development Officer, Centre for London*

“ For grassroots campaigners such as us, who campaign without a science background, it can be a challenge to develop informed policy requests. We had been hesitant for example, to ask for an electrification of the bus fleet as we weren’t sure which impact this would have and if this were contractually feasible. On the issue of the research on Red Routes I would go much further – few campaigners were focussing on them, but within a few months EDF Europe’s air pollution team under the leadership of Oliver Lord, have – rightly – made them a focal issue for campaigners.”

**Jemima Hartshorn,**  
*co-founder Mums for Lungs*



# DATA TO ACTION

Environmental Defense Fund (EDF)'s Global Clean Air initiative uses air-quality data to build the case for policies that reduce pollution and improve health.

In London, we turned monitored and modelled pollution data into action by:

- 1. Making air quality data 'actionable':** We gathered data and analysed information to understand where pollution is coming from, when and where pollution is worst and who is most impacted.
- 2. Supporting air quality influencers:** We shared findings and equipped changemakers with relevant and targeted analyses to support their advocacy and action.
- 3. Raising city-level policy ambition to reduce health inequities:** We spotlighted specific policies that can address the most harmful pollution sources for vulnerable people, particularly in the lead-up to London's mayoral election.

Here's how we promoted ambitious, equitable and evidence-based air quality solutions in London using hyperlocal air pollution data and insights.



You can find additional information on [www.GlobalCleanAir.org](http://www.GlobalCleanAir.org)



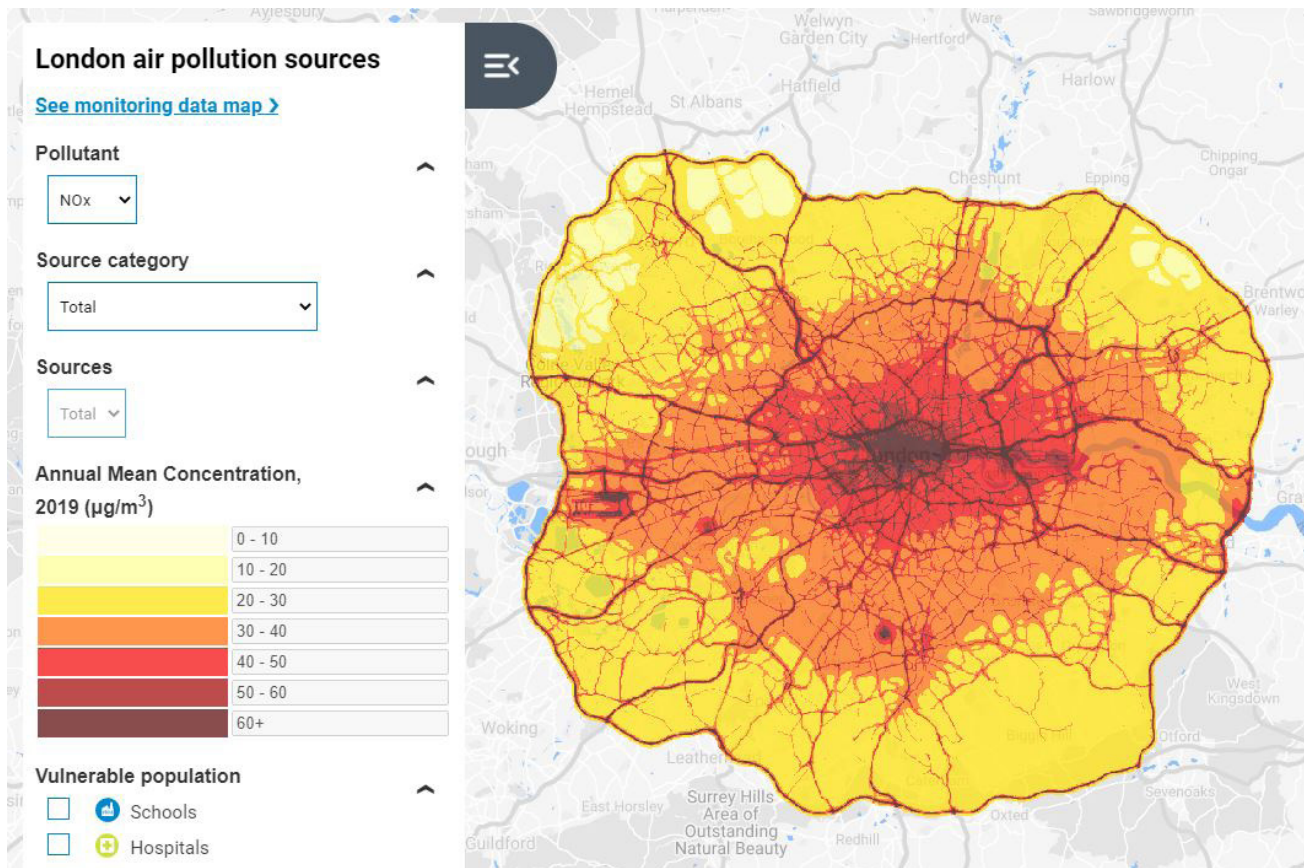
# Make air quality data ‘actionable’

Air pollution harms people’s health in London. To reduce their exposure, Londoners need better information on pollution sources, as well as readily available — and understandable — air pollution data and analysis. Monitoring air quality is a critical step toward reducing pollution, but data on its own doesn’t lead to healthier communities.

Here are several ways we produced data and targeted analyses:

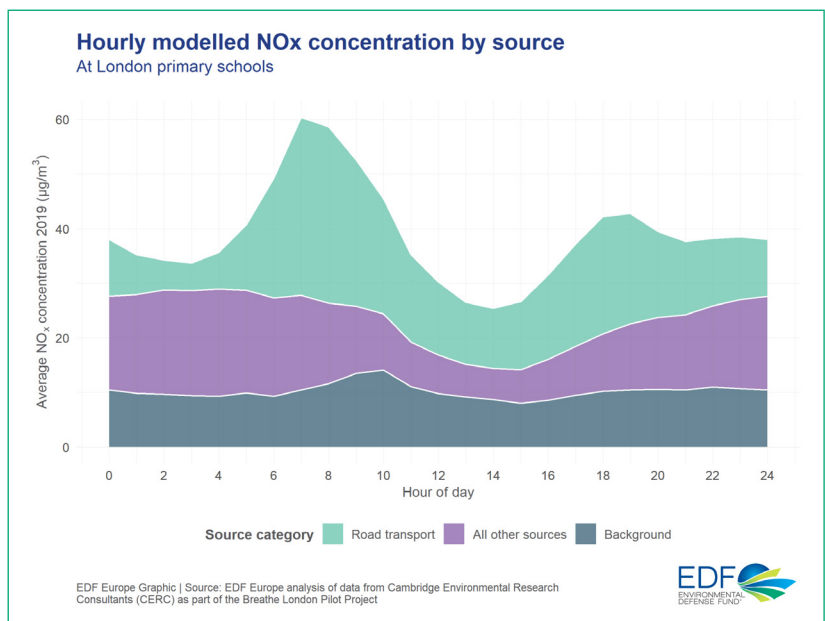
- **Monitoring:** For two years we led the Breathe London pilot project to help people better understand their local air quality. Launched in partnership with the Mayor of London and leading science experts, the pilot deployed a monitoring network of 100 lower-cost sensors and specially-equipped Google Street View cars to map and measure pollution across the capital.
- **Guidance:** We created a detailed Breathe London Blueprint for cities around the world to replicate best practices from our pilot within their own monitoring initiatives and learn from our experience.





EDF visualisation of modelled 2019 annual mean NOx data from CERC as part of the Breathe London pilot project.

- Visualisation:** We built a first-of-its-kind map to display a detailed modelled dataset on pollution sources, produced by Breathe London pilot project partners Cambridge Environmental Research Consultants (CERC), to allow policymakers and advocates to better understand how different activities create pollution around the city.
- Lockdown impacts:** We used a machine learning model to predict what the concentration of nitrogen dioxide (NO<sub>2</sub>) would have been if lockdown restrictions had not come into effect between March and June 2020. Using cutting-edge methods, we found NO<sub>2</sub> pollution was 40% lower than expected across London during the initial COVID-19 lockdown.
- Schools:** We found road transport sources to be the greatest contributor of harmful air pollution at London state primary schools, with pollution peaks around morning drop-off and afternoon pick-up times.
- Diesel cars:** We found that levels of nitrogen oxides (NOx) from diesel cars were 23% higher at study sites outside the central London Ultra Low Emissions Zone (ULEZ). The sites where diesel cars contributed most to NOx pollution were outside the planned October 2021 extension of the ULEZ.







EDF also helped us to get the signs written in Bengali which were then put in Whitechapel in order to represent the large population of Brown and Bangladeshi people living there. This inclusivity was really important, and we had great feedback from people who stood in solidarity with us.

I believe that initiatives like Environmental Defense Fund’s pollution resources map provide a powerful representation of the reality we live in. Most of the time, people are unable to grasp the severity of air pollution in our homes and communities because it is an invisible killer, and so the map contextualises how much toxic air we are breathing. It worries me that our hospitals and schools sit right on the red zones because it shows that our most vulnerable members of our London community are subject to the worst quality of air through no fault of their own.”

**Destiny Boka Betesa,**  
*co-founder of Choked Up*



# Support air quality influencers

To raise awareness about air pollution inequity and create change, we wanted to arm air quality influencers with powerful data and compelling analyses. We equipped campaigners and advocates, as well as policy leaders and decision makers, with targeted data stories that could support more action.

Here are several ways we supported air quality influencers:

- The urban policy organisation **Centre for Cities** used our research on air quality during lockdown restrictions in its report on how the pandemic affected air quality in cities.
- In the aftermath of the COVID-19 pandemic, we evaluated pollution sources at a thriving commercial hub in London for environmental charity **Global Action Plan's** 'Build Back Cleaner Air' report.
- Our findings on pollution changes and the apparent connection between congestion and NO<sub>2</sub> levels during London's first lockdown were included in a government report by the **Air Quality Expert Group**.
- The **Mayor of London** cited our analysis as supportive evidence for new action to reduce pollution at schools.
- We partnered with health justice neuroscientists at **Centric Lab** to examine health inequities along London's busiest roads, the Red Routes.
- Our research on how deprived children and those from Black, Asian and minority ethnic communities were particularly at risk from air pollution underpinned a report by the **London Assembly**, the cross-party body tasked with holding the Mayor of London to account.



**Caroline Russell**   
@CarolineRussell



Our [@LondonAssembly](#) Environment Committee report looking at air pollution in London is out today. Mayor has made good progress on NO<sub>2</sub> but PM<sub>2.5</sub> still awful across London and needs attention. Lots of useful new data on concentrations around roads - huge thanks to [@EDFCleanAir](#).

“ Exposure to air pollution is the largest environmental risk to our health. But air pollution doesn’t affect people equally. Children, older people and people with lung and heart conditions are particularly susceptible; while people in lower income communities are also at risk because poor air quality intersects with other systemic causes of ill-health such as unemployment, low income and noise pollution. EDF’s efforts to visualise and translate modelled data provides an unprecedented level of detail into where pollution exposure is highest and why. The map and analyses help communities and policy makers address health inequities by highlighting which sources of pollution to tackle first, as well as where action is needed most to protect the health of those who are most susceptible to the effects of air pollution.”

**Kate Langford,**  
*Programme Director, Health effects of air pollution at Impact on Urban Health*

“ The London pollution sources map by EDF is exactly the type of tool that we need to elevate public health, stop health inequities, and understand how to create more biologically-supportive policy. This is the first map that allows us to see the main contributors to air pollution and where pollution congregates, which is important in terms of policy. If we are to create equitable health strategies related to air pollution, we need to investigate questions such as who is being exposed to greater amounts of pollution and what are the sources of pollution associated to specific neighbourhoods? We should be putting strict measures on the big sources of pollution whilst creating systems of equitable mass transport of people.”

**Araceli Camargo,**  
*Lab Director & Co-Founder, Centric Lab*



# Raise city-level policy ambition to reduce health inequities

To put air quality front and centre in the 2021 London mayoral election, we launched a public awareness call-to-action campaign – led by Black and brown youth Choked Up, a coalition of parents Mums for Lungs and concerned health workers Medact.

Our joint campaign raised awareness about the disproportionate health impacts of air pollution and increased demand for government action by focusing on three key policy areas:

- 1. Safeguard expansion of the ULEZ:** We launched a billboard on the South Circular, the boundary of the planned ULEZ extension, with giant 3D artificial lungs that turned grey as pollution levels rose. We complemented the poster with new data on the nearly 50,000 children who attend school near busy roads, supporting the need for candidates to expand the ULEZ later this year.
- 2. Clean up London's busiest roads:** Choked Up activists installed mock road signs along Red Routes to warn 'pollution zone' and 'breathing kills,' using our data analysis exposing the health inequalities of air pollution for communities of colour. The activation focussed on the need to transform the city's busiest roads.
- 3. Deliver a zero-emission bus fleet:** Pavement stencils in Kingston highlighted the impact of air pollution from diesel buses using our analysis, which revealed how deprived communities are hit the hardest by diesel bus pollution. The activation emphasised the need for candidates to commit to zero-emission bus fleets as soon as possible.



Here are other cross-cutting ways we raised city-level policy ambition along with partners:

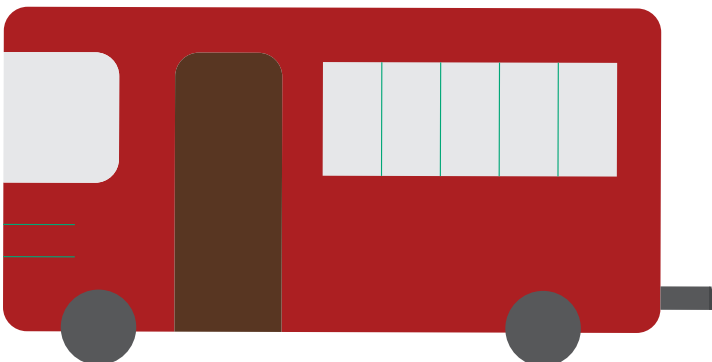
- **Public event:** We held an engaging public policy event with thinktank Centre for London to discuss how to transform London's busiest, most polluted roads, as well as a clean air hustings with the mayoral candidates and delegates.
- **Meetings:** We met with mayoral candidates and campaign staffers to discuss key policy priorities.
- **Media:** We engaged reporters on campaign activations, generating more than 30 air pollution stories across TV, print and online media that reached an audience of approximately 107 million people.
- **Social media:** Using the hashtag #Mayor4CleanAir, we leveraged the social media platforms of each campaign partner to reach key audiences and engage political influencers.
- **Thought leadership:** We leveraged local platforms and trade outlets to publish bold calls for action aligned with our key policy areas, as well as coordinated letters signed by multiple campaigners and advocates.



## The Guardian

### Pollutionwatch: time to rethink London's red routes

In many cities around the world, major roads have been restructured to ease air pollution



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