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FIVE WAYS YOU CAN CREATE CLEANER AIR

TIM SMEDLEY

MARCH 2020



Read this book
and join the effort
to terminate air
pollution

ARNOLD SCHWARZENEGGER



TIM SMEDLEY



Tim Smedley, award-winning journalist specialising in environmental and social issues, has worked with Insight recently to help our staff understand the impact of air pollution, the issues involved and what we can all do to contribute positively to our local environment. Tim is author of **'Clearing the Air: The Beginning and the End of Air Pollution,'** which was shortlisted for the Royal Society Science Book Prize in 2019, sponsored by Insight Investment.

His book presents insights from his own research and the actions of scientists, environmentalists, businesses and politicians seeking to tackle the issues created by poor air quality all over the world. He shares practical ways in which we can all take action to contribute to creating a cleaner future in what is a global issue that we can all locally influence through the decisions we make.

As follow up to our internal events for Insight staff, Tim created this short guide with us to cover five simple ways we can all create cleaner air:

OUR SPONSORSHIP PROGRAMME

Our sponsorships are carefully aligned with institutions whose purpose relates to the promotion of public engagement with the sciences and arts. We are proud sponsor of the Royal Society Insight Investment Science Book Prize because this important initiative is designed to foster increased public engagement with a wide range of scientific topics by encouraging authors with new and innovative ideas to challenge pre-conceived wisdom. In a world full of uncertainty, continuous improvement in human understanding is something we value highly and we wish to support those who champion the ongoing search for the truth. Our support for institutions and causes is targeted to initiatives that encourage and inspire young people into careers of science, technology, engineering and mathematics (STEM) and our programme seeks to explore the powerful interrelationship between the sciences and the arts.

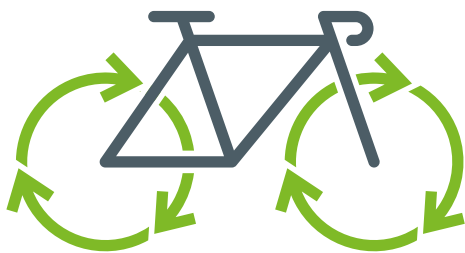


FIVE WAYS YOU CAN CREATE CLEANER AIR

1. DITCH THE CAR



Not only are cars the cause of most urban pollution, but studies show the air pollution inside a car is typically four to seven times higher than the pollution outside. Slow-moving traffic is the worst – you are literally sitting in a bubble of pollution, breathing the exhaust fumes of the cars in front.



So walk, cycle or take public transport wherever possible. Yes, there are pollution exposure risks associated with each of those too. But studies of pollution exposure comparing different transport modes consistently show the same hierarchy: cars are the worst, pollution on buses and trains is lower, and for cyclists and pedestrians it is lower still.

Sometimes public transport isn't an option, and cycling isn't always a realistic choice with kids and shopping (although you'd be surprised what you can fit in a cargo bike). But according to the National Household Survey, half of all trips by car in the UK are three miles or less, and 28% are under one mile. For many of those journeys, it's time to ditch the car.

2. GO ELECTRIC



The science of particulate pollution tells us that it's the particles from combustion – and in particular from burning fossil fuels, including petrol and diesel – that are the worst for our health. So if you need a new car, consider going electric. There's a whole range of electric cars on the market now, many able to go beyond 200 miles on a single charge – and remember, you can plug them in at home to charge overnight (meaning, in effect, that we all have a petrol station at home. So who's got range anxiety now?).

Electric cars aren't the be-all-and-end-all. They still create some pollution through tyre and brake wear. Walking and cycling remains the better option for short journeys. But electric cars emit zero nitrogen dioxide (NO₂) and zero combustion particles, so from a clean air point of view, they are a huge improvement from your old gas-guzzler. If you're not sure where or how to start, there's a great YouTube channel: 'Maddie Goes Electric – a beginner's guide to driving an electric vehicle'.

Electricity isn't just for cars. If you like the idea of cycling but your Tour De France days are behind you (or you live in a hilly area), then consider an electric bike. You still get the benefit of exercise, but the power you put into the pedals is boosted by an electric motor, meaning you can get up those hills with relative ease. You can own one for around £1,000 or download an app and hire one of those floating around London and other cities, such as Lime or Jump. There are app-based electric car clubs too, such as Co-wheels and E-Car, meaning you don't have to own an electric car but just access one whenever you need to.



The air pollution inside a car is typically four to seven times higher than the pollution outside



3. NO MORE BURNING



Whether it's fuel in a car or logs on a fire, do you have a viable zero-emissions alternative? Is your electricity at home from a renewable energy supplier? The worst pollutants for our health come from combustion emissions – the nanoparticles coated with carcinogenic diesel fuel that come from modern vehicle exhausts, to larger black carbon particles and PAHs (polycyclic aromatic hydrocarbons) that come from coal and log burning. As a society, we are rightly moving away from coal power stations as we look to decarbonise our economy by 2050 – yet as consumers, we seem to have a blind spot for coal and logs burnt at home.

In terms of polluting the areas where we live and breathe, burning logs in our homes is far worse than coal or wood pellets in a power station many miles away. Between 2013 and 2014 there was a 29% increase in annual PM2.5, a measure of atmospheric particulate matter (PM), in the UK simply due to the consumption of wood as a domestic fuel. The professor of atmospheric chemistry at York University told me a lit stove is the equivalent of having a 7.5 tonne diesel truck idling outside your house. And we're installing 200,000 of these a year. If you've got one already, my advice is to keep it as a decorative item – light a candle inside to still give you the warm glow – but use electric heating instead. If you're keen to fit the most eco-friendly option possible, then go for an air-source or ground-source heat pump, or solar panels combined with an electric boiler.

4. GROW SOME GREENERY



If you live beside a busy road, or your kids go to a school or nursery next to a busy road, then look into creating green walls and green roofs. Cities such as Singapore are rapidly adding to their urban greenery as a means of improving air quality: planting vegetation in cities can reduce street-level concentrations of NO₂ by 40% and PM by 60%. This can be as simple as letting ivy grow up and over walls or planting a dense hedgerow. More sophisticated living walls can be seen on the side of Edgware Road tube station, or Citicape House currently under construction in London, which when complete will be clad with the largest green wall in Europe: 40,000 square feet, trapping approximately 500kg of PM per year.

I helped my daughter's nursery in Banbury, Oxfordshire, to put up a green wall of conifers beside the playground – it all makes a difference. A single tree reduces the PM concentrations behind it by 15%. Planting trees and adding to the greenery of our urban environment is something we can all do and get behind. Young tree and plant growth also sequesters (sucks up) carbon dioxide and adds oxygen too, so it can form a small part of our response to the climate crisis. But the most immediate impact will be felt on our air quality, so the quicker we do this the better, and the closer to traffic the better to filter out some of the traffic fumes.



5. GET VOCAL



Not everyone wants to be an activist and chain themselves to railings. Fortunately, you don't need to. But we do need to be vocal about the changes we need and the speed we need them by. When the government first announced that the sale of new petrol and diesel cars would end from 2040, in recognition of the air pollution they cause, that was a much-needed first step. But do we really want to wait another 20 years, and our children to grow up with stunted lungs and asthma, before we realise the benefits? The London Ultra Low Emission Zone (ULEZ) too has been a huge success, with 13,500 fewer non-compliant cars entering the zone on an average day, and a 36% reduction in NO2 pollution. In 2021, the ULEZ is set to extend from this small trial zone to a vast area stretching to the North and South Circular ring roads. But there is a mayoral election also set for 2021 (delayed from 2020 due to the pandemic), and depending on timing, weakening or delaying this extension could be on the table – so we need to give our vocal support, not least because there is a powerful lobby arguing against the extension. The same applies to the extension of cycle superhighways and segregated cycle lanes.

Get in touch with your local politicians – ask them what they are doing to improve walking, cycling, electric bus routes, and electric vehicle charging infrastructure, where you live and work. Get involved in National Clean Air Day on 8 October. There are various local and national campaign groups, ranging from Mums For Lungs in London, or Sustrans – the national active travel group – to follow and get free pamphlets and material from. The more noise we make as citizens, consumers and voters, the quicker this change will happen. I firmly believe that a clean air future is coming – one with only cycle networks, electric vehicles, and carbon-free electrical grids. But whether that happens in 10, 20, 50 or a 100 years' time is down to us. I, for one, want to live to see it.

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