HEALTHY AIR FOR EVERY CHILD: A CALL FOR NATIONAL ACTION

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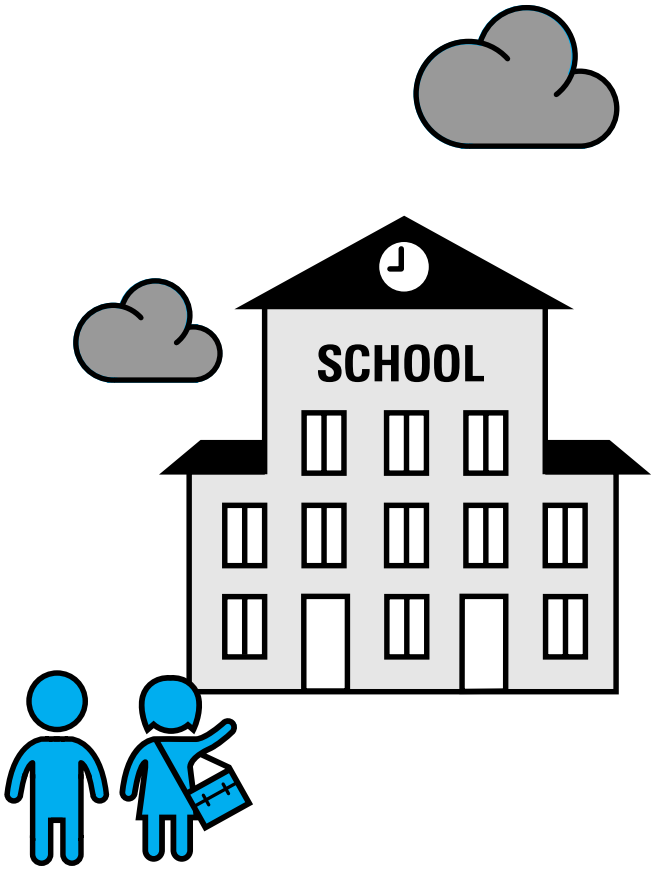
Unicef UK

FOR EVERY CHILD IN DANGER

unicef
UNITED KINGDOM

CONTENTS



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FOREWORD

> "Day in, day out, children in many towns and cities across the UK are filling their lungs with dangerously high levels of air pollution."
>
> **Emma Bunton**

As parents, we're bombarded with messages every day on how to make sure our children grow up happy and healthy. We do everything we can to protect them.

When the sun is beating down, we smother our children in sun cream. If the heating fails, we wrap them up warm. And when we cross busy roads with them, we hold their hand tight.

But there's a dangerous threat to children's health that we can't see and that rarely crosses our minds: toxic air. Day in, day out, children in many towns and cities across the UK are filling their lungs with dangerously high levels of air pollution. At the park, in the playground and as they walk to school, many children are breathing toxic air that could be damaging their health and their futures.

Yet we hear so little about it. If we don't know how bad the problem is, how can we protect children from harm?

Despite how serious a risk this is to our children, little public money is being targeted to tackle toxic air where children live, learn and play. There are measures that can make a real difference. But our children's health is not being prioritised.

Every child should be able to look towards a long, happy life. No child should be unhealthy because of the air that they breathe. The time to act is now.

Emma Bunton
Unicef UK Ambassador

EXECUTIVE SUMMARY

Around one in three children are growing up in areas of the UK with unsafe levels of air pollution.[1]

This is a fundamental threat to their right to grow up in a clean, healthy environment. It could leave them with **lasting health problems, including stunted lung growth and an increased risk of asthma and pneumonia**.

Current national action on air pollution lacks the ambition and direction needed to protect children and young people – those most vulnerable to harm – from toxic air. Under existing plans, the government admits that toxic levels of pollution are likely to persist for at least another ten years, meaning millions of children and young people in the UK could be at risk for many years to come.

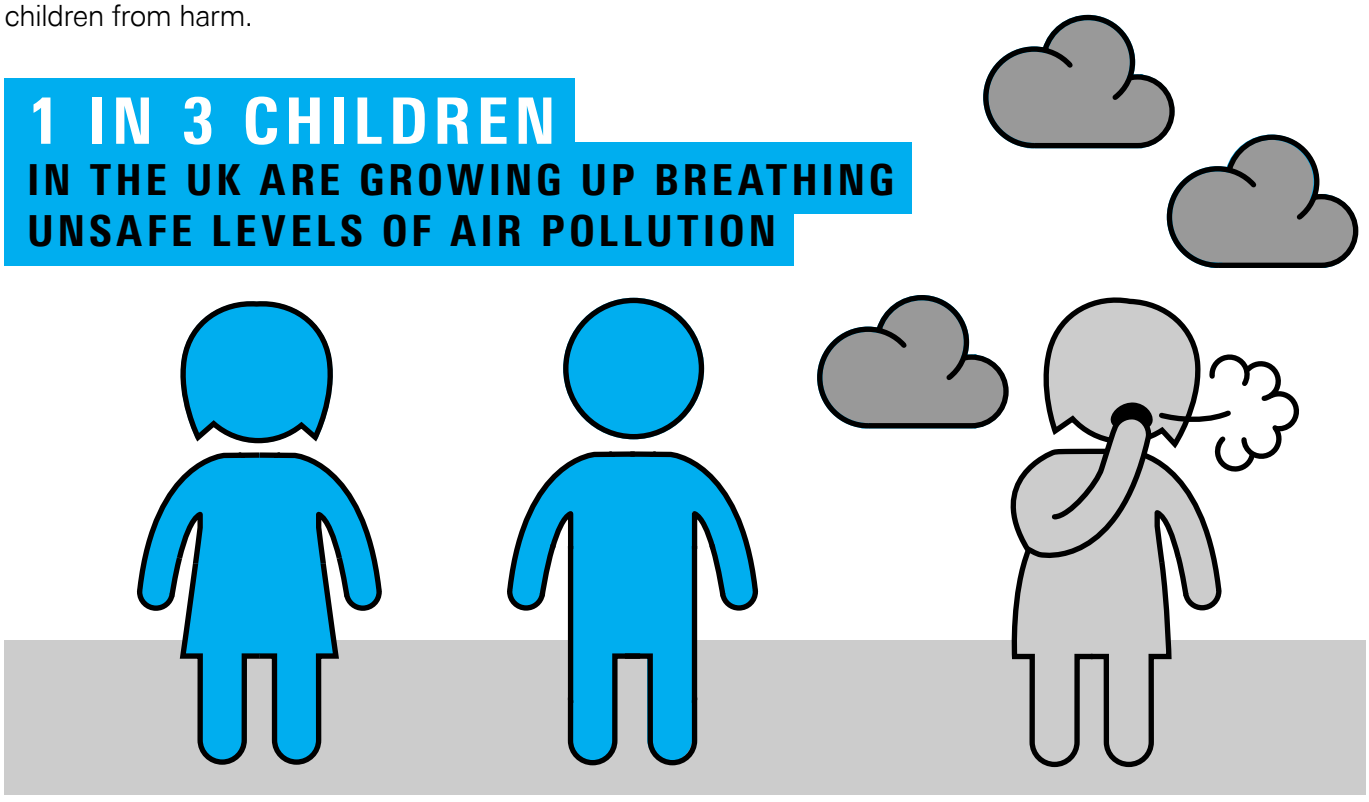
Despite this, **there is no national plan in place to protect children** in the meantime. Government-set targets to improve air quality in the UK fall short of international recommendations, and there is insufficient funding in place to support the implementation of measures needed to protect children from harm.

What's more, children and young people's health remains absent from current policies and funding aimed at improving air quality.

The focus of government efforts has so far largely been on the delivery of major transport interventions, such as the design of clean air zones and the rollout of electric vehicle charging points. While these national interventions are essential to tackle the main source of the UK's toxic air crisis, they are insufficient to protect children and young people while emissions remain high.

Without a commitment to reduce children and young people's exposure to pollutants, and the unlocking of resources to deliver on that commitment, children and young people across the UK will remain vulnerable to the harmful effects of toxic air for at least another 10 years – or until we achieve safe levels of air pollution.

Children today deserve better. They cannot wait another 10 years for the air to become safer to breathe.



1 Unicef UK (2018). A breath of toxic air: UK children in danger, www.unicef.org.uk/wp-content/uploads/2018/06/A-breath-of-toxic-air_UnicefUKResearchPaper_June2018.pdf. 'Unsafe' refers to average levels of fine particulate matter ($PM_{2.5}$) on or above the level the World Health Organization-recommended limit value of 10 µg/m3 per year.

Until healthy air quality levels are reached across the UK, **the UK government has a responsibility to protect children and young people from the harmful effects of toxic air.**

A range of measures which achieve results in the short and long term are required, from reducing pollutant concentrations in the immediate vicinity of child-centric locations such as schools and nurseries – where Unicef UK research has found that children are disproportionately exposed to air pollution[2] – to awareness-raising campaigns that encourage positive behaviour changes over time.

Collaboration will be needed across government departments – including the Department for Environment, Food, and Rural Affairs, the Department of Health and Social Care, and the Department for Transport – in order to deliver a co-ordinated and comprehensive suite of interventions.

To deliver these measures at scale, a robust approach at national level is required.

UNICEF UK CALLS ON THE UK GOVERNMENT TO:

1 SET LEGALLY BINDING TARGETS

to meet World Health Organization-recommended limit values for particulate matter across the UK by 2030, and take urgent action to meet existing targets on Nitrogen Dioxide (NO_2).

2 COMMIT TO A CROSS-GOVERNMENTAL HEALTHY AIR FOR CHILDREN ACTION PLAN

that sets out a national framework to protect children and young people from toxic air where they are most at risk.

3 COMMIT TO A LITTLE LUNGS FUND

providing ring-fenced funding to protect children and young people from toxic air amounting to a minimum of £215 million in the first year and yearly replenishments until 2030, or as long as air pollution levels remain unhealthy.

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2 Unicef UK (2018b). The Toxic School Run: UK children at daily risk from air pollution, www.unicef.org.uk/publications/the-toxic-school-run/

1 TOXIC AIR: AN INVISIBLE THREAT

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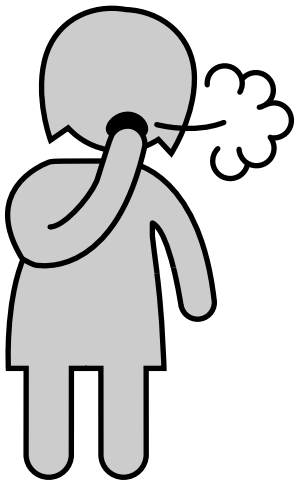
AIR POLLUTION IS AN INVISIBLE BUT DANGEROUS THREAT TO CHILDREN'S HEALTH.



Toxic air can damage children's growth and leave them with lasting health problems. It poses a particularly severe risk to those children and young people already suffering from heart conditions or respiratory problems, such as asthma and cystic fibrosis.

The government's failure to adequately tackle air pollution is a failure to uphold every child's right to grow up in a clean and healthy environment – a right protected by the UN Convention on the Rights of the Child[3] and a critical requirement for every child to grow, develop and learn to their full potential.

3 UN Convention on the Rights of the Child, Article 24, www.unicef.org.uk/what-we-do/un-convention-child-rights/

TINY PARTICLES AND TOXIC GASES

Air pollution is a mixture of particles and gases in the air that are harmful for human health. **The two most important pollutants are particulate matter (PM) and nitrogen dioxide (NO_2):**

- Particulate matter equal to or less than 10 micrometres in diameter ($PM_{2.5}$ and PM_{10}) are tiny fragments of solids or liquids suspended in the air that range in size from visible particles, such as soot or dust (PM_{10}), to particles that are smaller than the width of a human hair ($PM_{2.5}$).[4]

  Unicef and others have found that $PM_{2.5}$ poses a particularly high threat to children's health as particles this small can invade the smallest airways, travel into children's bloodstreams and potentially even permeate their brains.[5,6] Sustained exposure through the course of a lifetime can increase the risk of lung cancer, cardiovascular disease and even early death.[7]

  Particulate matter is understood to pose a risk to health at any concentration meaning there is no 'safe' level.

- Nitrogen dioxide (NO_2) is one of a group of gases called nitrogen oxides. It is a toxic, invisible gas which, at high concentrations, can irritate the linings of children's airways, increase the risk of respiratory illness and damage the growth of children's lungs.[8]

The World Health Organization (WHO) has set recommended limit values for particulate matter and nitrogen dioxide, based on the best available evidence of the health effects of both pollutants. WHO have identified air pollution and climate change as one of the top 10 threats to global health in 2019.[9]

The European Union also sets legally binding limit values for air pollutants which the UK transposed into UK law in 2010, although these levels are more lenient than those recommended by the WHO in the case of $PM_{2.5}$.

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4 World Health Organization (WHO) (2018). 'Ambient (outdoor) air quality and health,' www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health

5 Queen Mary University of London (2018). 'First evidence that soot from polluted air may be reaching placenta', www.qmul.ac.uk/media/news/2018/smd/first-evidence-that-soot-from-polluted-air-may-be-reaching-placenta.html

6 UNICEF (2017). Danger in the air: How air pollution may be affecting the brain development of young children around the world, www.unicef.org/environment/files/Air_pollution_paper_-_DEC_2.pdf

7 Kelly, F.J. and Fussell, J.C. (2015). 'Air pollution and public health: emerging hazards and improved understanding of risk', Environmental Geochemistry and Health, 37(4): 631-649, doi: 10.1007/s10653-015-9720-1.

8 Royal College of Physicians (RCP) and Royal College of Paediatrics and Child Health (RCPCH) CP and RCPCH (2016). Every breath we take: The lifelong impact of air pollution, www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution

9 WHO, 2019. 'Ten threats to global health in 2019', www.who.int/emergencies/ten-threats-to-global-health-in-2019

A NATIONWIDE HEALTH RISK

Across the UK, air pollution is at harmful levels. Particulate matter and nitrogen oxides are found at their highest concentrations next to busy roads and in large urban areas.[10]

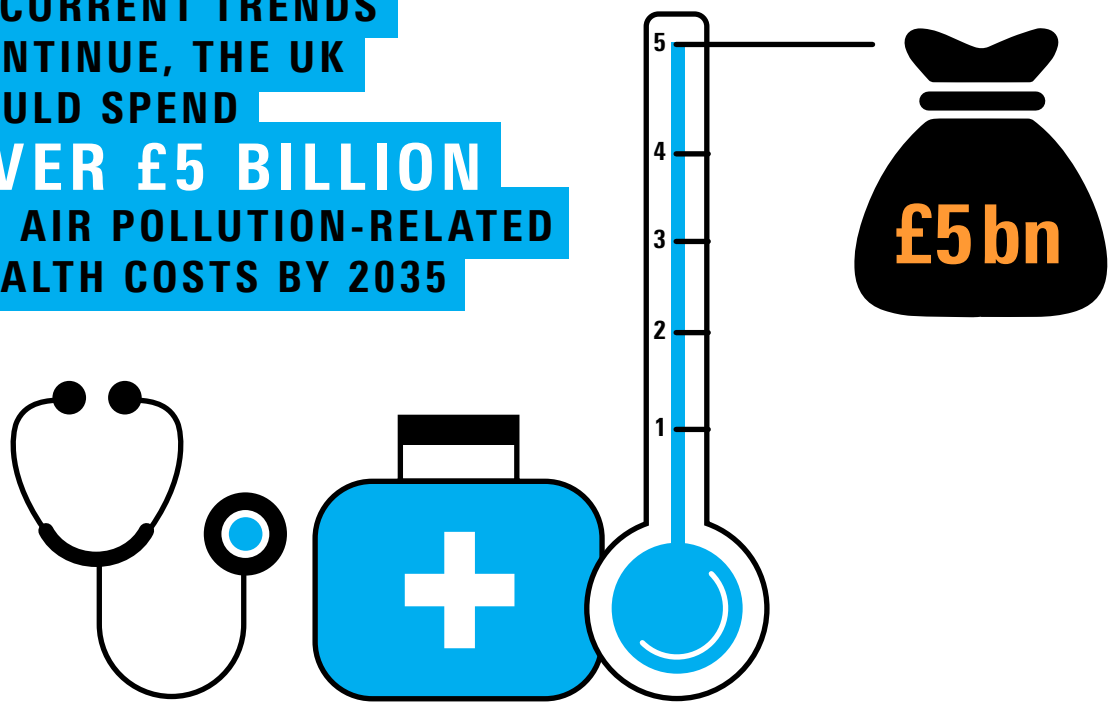
Over 70% of UK towns and cities have levels of $PM_{2.5}$ pollution over the limit recommended by the WHO.[11] And, in many of the country's urban areas, NO_2 pollution has repeatedly breached EU legal limits since 2010. Similarly, as of 2017,[12] NO_2 concentrations are at illegal levels across 86% of the UK[13], and the government expects these illegal levels to continue for at least another ten years.[14]

The UK population's exposure to harmful levels of air pollution is costly to our public health services.

Public Health England estimates that the total **health and social care costs of air pollution in England** over time (accounting for those diseases which have a strong association with air pollution exposure, such as coronary heart disease, stroke, lung cancer and childhood asthma could reach a cumulative cost of **£5.3 billion by 2035**.[15]

When additional diseases for which the link with air pollution is less well evidenced (including chronic obstructive pulmonary disease and low birthweight babies, among others) are also taken into account, the cumulative costs over time rise to **£18.6 billion by 2035**.[16] When taking mortality into account, and the costs of life years lost, the Royal College of Physicians and Royal College of Paediatrics and Child Heath state that the total associated social costs of air pollution currently reach around **£22.6 billion per year.**[17]

IF CURRENT TRENDS CONTINUE, THE UK COULD SPEND
OVER £5 BILLION
ON AIR POLLUTION-RELATED HEALTH COSTS BY 2035



10 DEFRA, Public Health England (PHE) and Local Government Association (LGA) (2017). Air Quality: A Briefing for Directors of Public Health, www.local.gov.uk/sites/default/files/documents/6.3091_DEFRA_AirQualityGuide_9web_0.pdf

11 Unicef UK (2018). Op. cit.

12 UK Department for Environment, Food & Rural Affairs (DEFRA) and Department for Transport (DfT) (2017). UK plan for tackling roadside nitrogen dioxide concentrations: Detailed plan', assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633270/air-quality-plan-detail.pdf

13 37 out of 43 UK zones exceeded legal annual mean levels of NO_2 in 2017; DEFRA (2018). Air pollution in the UK 2017, uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2017_issue_1.pdf

14 DEFRA/DfT (2017). Op. cit. s

15 DEFRA (2019). Clean Air Strategy 2019, assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

16 DEFRA (2018b). Op. cit.

17 Royal College of Physicians (RCP) and Royal College of Paediatrics and Child Health (RCPCH) CP and RCPCH (2016). Every breath we take: The lifelong impact of air pollution, www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution

CHILDREN'S VULNERABILITY TO TOXIC AIR

It is widely recognised that children and young people are at increased risk from toxic air compared to most adults (see Box 1, p.11).

Emerging evidence indicates that toxic particulates can travel through the mother's placenta wall,[18] and there is strong evidence that inhalation of air pollution by pregnant women affects the development of the foetus.[19]

During early childhood, a critical time for physical and cognitive development, infants are particularly vulnerable to the effects of harmful substances on their growth.[20]

As children breathe faster than adults, they take in more polluted air: **an infant breathes in three times as much air as an adult, and a six-year-old breathes in twice as much**, relative to their weight.[21]

Children also tend to spend more time outside, where concentrations of air pollution from traffic are generally higher.[22] And when children are walking or in a pushchair, they are often at the height of vehicle exhausts meaning that they breathe in higher concentrations of pollutants.[23]

The risk of air pollution exposure to children's health is particularly acute during periods of cold weather, when pollution concentrations rise and when the symptoms of respiratory conditions such as asthma are already worsened.[24]

INFANTS BREATHE IN THREE TIMES AS MUCH AIR AS ADULTS*

SIX-YEAR-OLDS BREATHE IN TWICE AS MUCH AIR*

***relative to their weight**

18 Tsamou, M., Vrijens, J., Madhloum, N., Lefebvre, W., Vanpoucke, C., and Nawrot, T.S. (2018). 'Air pollution-induced placental epigenetic alterations in early life: a candidate miRNA approach', Epigenetics, 13(2), doi: 10.1080/15592294.2016.1155012; Queen Mary University of London (2018). Op. cit.

19 Korten, I., Ramsey, K., and Latzin, P. (2017). 'Air pollution during pregnancy and lung development in the child', Paediatric Respiratory Reviews, 21: 38-46, doi: 10.1016/j.prrv.2016.08.008; Fleischer, N.L., Merialdi, M., van Donkelaar, A., Vadillo-Ortega, F., Martin, R.V., Betran, A.P., Souza, J.P., and O'Neill, M.S. (2014). 'Outdoor air pollution, preterm birth, and low birth weight: analysis of the World Health Organization Global Survey on Maternal and Perinatal Health', Environmental Health Perspectives 122: 425-430, doi: 10.1289/ehp.1306837.

20 UNICEF (2016). Clear the air for children, www.unicef.org/publications/index_92957.html

21 Miller, M.D. et al. in WHO (2008). 'Children are not little adults', WHO Training Package for the Health Sector, www.who.int/ceh/capacity/Children_are_not_little_adults.pdf

22 Schwartz, J. (2004). 'Air Pollution and Children's Health', Paediatrics, 113(3), PubMed: 15060197.

23 Kenagy, H.S., Lin, C., Wu, H., and Heal, M.R. (2016). 'Greater nitrogen dioxide concentrations at child versus adult breathing heights close to urban main road kerbside', Air Quality, Atmosphere & Health 9(6): 589-595, doi: 10.1007/s11869-015-0370-3.

24 Penrose, M., Viner, R. and Holgate, S. (2018). 'Children with respiratory conditions face a twofold threat this winter', *The Guardian,* www.theguardian.com/environment/2018/dec/07/children-with-respiratory-conditions-face-a-twofold-threat-this-winter

Children experience particularly high concentrations of air pollution while they are on the school run and when playing outside at break time.[25]

A 2018 study undertaken in Manchester, Leeds, Glasgow and London found that, compared to adults, primary and nursery school children were exposed to 30% higher levels of black carbon (a component of particulate matter) on the school run along busy roads, primarily because they are closer to vehicle exhausts.[26]

When travelling by car, children's exposure can be even higher: a study undertaken in 2018 found that children travelling by car in four UK cities were exposed to pollution levels twice as high as those for children who walked to school.[27]

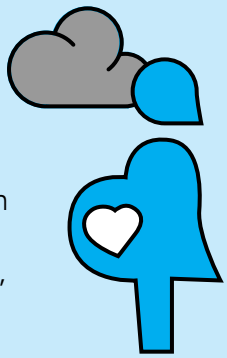
Children and young people who live in the poorest communities are more likely to be exposed to pollution than those in affluent areas, since low-income households tend to be situated closer to busy roads.[28] Children and young people in deprived communities are also less likely to have access to green spaces or adequate public transport, meaning their options for avoiding pollution hotspots may be more limited.[29]

Compounding all these factors, children and young people tend to have limited access to the information they need about how to protect themselves from harm and are often not empowered to demand change and exercise their right to be heard.

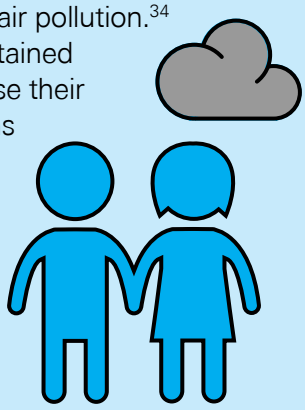
25 Unicef UK (2018b). Op. cit.
26 Clean Air Day (2018). 'The toxic school run: Primary school children exposed to 30% more toxic pollution than adults while walking to school', www.cleanairday.org.uk/news/toxic-school-run
27 Clean Air Day (2018). Op. cit.
28 DEFRA/PHE/LGA (2017). Op cit.
29 PHE (2016). Working Together to Promote Active Travel: A briefing for local authorities, assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/523460/Working_Together_to_Promote_Active_Travel_A_briefing_for_local_authorities.pdf

BOX 1: HOW DOES HIGH AIR POLLUTION IMPACT CHILDREN'S HEALTH?

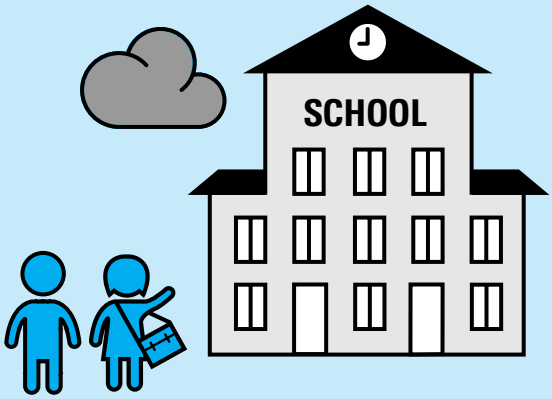
- **Air pollution can affect unborn babies during pregnancy.** Emerging studies suggest tiny particles can cross the placenta wall and put unborn babies at risk of harm.[30] Exposure of pregnant women to air pollution is linked with higher risk of premature birth, low birth weight and adverse respiratory outcomes.[31]



- **Air pollution harms the health and wellbeing of children.** In the short and long term, toxic air can stunt the growth of children's lungs and increase their risk of contracting pneumonia.[32] During high levels of pollution, children with asthma may be more likely to have an attack and end up in hospital.[33] All children may become more prone to coughs, wheezes and lung infections, and may be at heightened risk of developing asthma, if they are frequently exposed to air pollution.[34] Over their lifetime, sustained exposure could increase their risk of health conditions such as lung cancer,[35] and ultimately shorten their lives.



- **Air pollution threatens the ability of children and young people to enjoy their rights.** Toxic air threatens a child's right to health and to a clean and safe environment. The impacts of pollution on a child's health could lead to missed days at school and reduce their ability to safely play outside. This could then also have an impact on their right to education and their right to play.



- **Air pollution worsens existing health inequalities.** Since children and young people in the poorest areas are often the most exposed to pollution, toxic air reinforces unequal health outcomes for deprived communities. It also contributes to health inequalities later in life; children living in highly polluted areas are four times more likely to have reduced lung function in adulthood.[36]

30 Tsamou et al. (2018). Op. cit.

31 Korten et al. (2017). Op. cit.; Fleischer et Al. (2014). Op. cit.

32 RCP/RCHCP (2016). Op cit.; Nhung, N.T.T., Amini, H., Schindler, C., Joss, M.K., Dien, T.M., Probst-Hensch, N., Perez, L., and Künzli, N. (2017). 'Short-term association between ambient air pollution and pneumonia in children: A systematic review and meta-analysis of time-series and case-crossover studies', Environmental Pollution, 230: 1000-1008, doi: 10.1016/j.envpol.2017.07.063; Chen Z., Salam, M.T., Eckel, S.P., Breton, C.V., Gilliland, F.D. (2015). 'Chronic effects of air pollution on respiratory health in Southern California children: findings from the Southern California Children's Health Study', Journal of Thoracic Disease, 7(1):46–58, doi: 10.3978/j.issn.2072-1439.2014.12.20.

33 Orellano,P., Quaranta, N., Reynoso, J., Balbi, B., and Vasquez,J. (2017). 'Effect of outdoor air pollution on asthma exacerbations in children and adults: Systematic review and multilevel meta-analysis', PLoS ONE, doi: 10.1371/journal.pone.0174050.

34 RCP/RCPCH (2016). Op cit.

35 Straif, J., Cohen, A. and Samet, J. (eds) (2013). 'Air pollution and Cancer', IARC Scientific Publications: 161, www.iarc.fr/en/publications/books/sp161/AirPollutionandCancer161.pdf

36 RCP/RCPCH (2016). Op cit.

2 AN ACTION PLAN TO PROTECT CHILDREN FROM TOXIC AIR

The UK government has introduced a number of promising policies in recent years aimed at tackling air pollution at its source, but the collective ambition of these policies remains too low: illegal levels of NO_2 are expected to remain for at least the next ten years. It is therefore critical that measures are put in place to reduce children and young people's exposure to toxic air and to mitigate its harmful effects, while bringing greater ambition to implement policies that tackle air pollution at its source.

The UK government can maximise its resources and impact by taking steps to prioritise air quality improvement measures in those places where children spend a lot of time, such as at school and nursery.[37] The UK government should also fulfil its duty to ensure that children and families have access to information that explains the health impacts of air pollution and offers advice on how to avoid pollution hotspots.

2019 presents a key moment for the UK government to take ambitious action to protect children and young people from toxic air. Upcoming legislative should include the introduction of legally binding targets to improve air quality, while the Spending Review is the opportunity for the UK government to allocate dedicated and additional funds, creating the fiscal and political space to develop a national action plan through which to meet those targets.

Unicef UK has identified **three actions that the government must urgently take** to harness the opportunities for action in 2019 and to protect every child from harm:

1 SET LEGALLY BINDING TARGETS

to meet World Health Organization-recommended limit values for particulate matter across the UK by 2030, and take urgent action to meet existing targets on Nitrogen Dioxide (NO_2).

2 COMMIT TO A CROSS-GOVERNMENTAL HEALTHY AIR FOR CHILDREN ACTION PLAN

that sets out a national framework to protect children and young people from toxic air where they are most at risk.

3 COMMIT TO A LITTLE LUNGS FUND

providing ring-fenced funding to protect children and young people from toxic air amounting to a minimum of £215 million in the first year and yearly replenishments until 2030, or as long as air pollution levels remain unhealthy.

On the following pages, we outline each of these recommendations in more depth.

37 Unicef UK (2018b). Op. cit.

PROBLEM: INSUFFICIENT AMBITION IN CURRENT TARGETS

The UK Department for Environment, Food and Rural Affairs (DEFRA) has signalled a commitment to reducing the number of people in the UK living in areas where air pollution exceeds limit values recommended by the WHO by 2025.[38] While such a commitment is a step in the right direction, it is insufficiently ambitious.

The Clean Air Strategy should be aiming to protect every child across the UK from air pollution levels that breach WHO recommended limit values; **instead the proposed target only commits the UK government to halving the number of people living** in these areas, meaning that millions of children and adults are likely to remain in toxic air hotspots beyond 2025.

A prioritization of children, more broadly, in efforts to tackle air pollution and its health impacts is absent from current government strategy.

Article 24 of the UN Convention on the Rights of the Child (CRC), which the government has ratified, sets out the right of the child to the highest attainable standard of health. The same article also requires that states enable this right by taking appropriate measures to combat disease, accounting for the dangers and risks of environmental pollution.

Ultimately, the protection of children and young people's health should be a primary consideration in UK government policy on the environment.[39]

THE PROTECTION OF CHILDREN AND YOUNG PEOPLE'S HEALTH SHOULD BE A PRIMARY CONSIDERATION IN UK GOVERNMENT POLICY ON THE ENVIRONMENT.

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38 DEFRA (2019). Op. cit.

39 UN Special Rapporteur on Human Rights and the Environment (2018). Framework Principles on Human Rights and the Environment, www.ohchr.org/Documents/Issues/Environment/SREnvironment/FrameworkPrinciplesUserFriendlyVersion.pdf

RECOMMENDATION:

LEGAL COMMITMENT TO SAFE AIR ACROSS THE UK

Much greater ambition is required in the government's air quality targets, and children – who are the most vulnerable – need to be prioritised.

The government should set a clear legally binding target to reduce all UK concentrations of PM and NO_2 to WHO-recommended levels by 2030. This will mean setting new targets on $PM_{2.5}$ and PM_{10} levels, in line with WHO guidance, and committing to greater ambition and urgency in meeting existing legal limits on NO_2 pollution, which the UK government is currently breaching.

An interim milestone should be set to secure a pathway towards achieving the 2030 target and to ensure that vulnerable children are prioritised: **by 2022, no schools or nurseries in the UK should record PM or NO_2 concentrations above WHO-recommended limit values.**

To complement its commitment to WHO-recommended air quality targets, the UK government should **set new health-led national targets** to reduce the burden of air pollution exposure on children's health. Measurable objectives should be set in order to monitor progress, such as a reduction in the number of children and young people admitted to hospital with respiratory symptoms linked to air pollution.

To support these objectives, **data collection on air pollution and children's health needs to be vastly improved** and should be a strategic priority for the Healthy Air for Children Action Plan to promote healthier air for children and young people.

PROBLEM: INSUFFICIENT ATTENTION TO CHILDREN'S EXPOSURE

Responsibility for air quality improvement measures falls principally on local authorities. Many councils and schools across the country are trialling innovative approaches to reduce children's exposure, from green walls around nurseries and school street closures to clean air education programmes and anti-idling campaigns outside school gates. **But local authorities often lack the capacity to deliver meaningful change** and many have seen funding reduced in recent years.

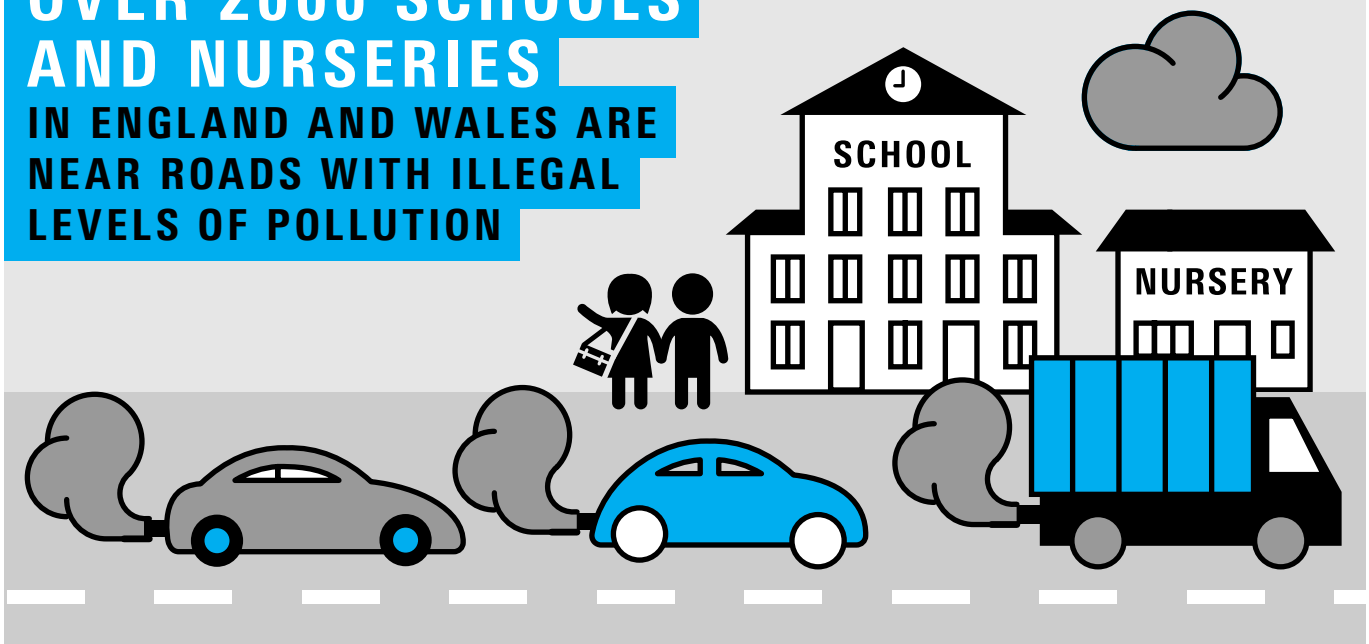
The UK government recognises the importance of tailored interventions to improve air quality that reflect local conditions and has committed to a "comprehensive set of new powers designed to enable targeted local action in areas with an air pollution problem." But, in the absence of sufficient funding for implementation or co-ordinating support from UK government – for example, guidance on preventative measures to reduce exposure to air pollution, or facilitated lesson-learning among local authorities to share best practice on protecting children and young people from toxic air – many local authorities across the UK are struggling to take robust action on air pollution and its impact on children and young people.[40]

Furthermore, **UK government policy has so far placed little emphasis on exposure reduction**, and less still has been on reducing the exposure of those most vulnerable to the ill-effects of toxic air.

In the absence of a national-level commitment to reducing children and young people's exposure to air pollution, there has been minimal effort to prioritize air quality improvement measures in those places where children live, learn and play.

Air quality monitoring networks across the UK are ill-equipped to measure and monitor pollution levels in child-centric locations such as schools and nurseries, or in places where vulnerable children are likely to gather, such as hospitals and GP surgeries.

OVER 2000 SCHOOLS AND NURSERIES IN ENGLAND AND WALES ARE NEAR ROADS WITH ILLEGAL LEVELS OF POLLUTION



40 LGA (2018). Local Government Association briefing Debate on improving air quality, www.local.gov.uk/sites/default/files/documents/LGA%20briefing%20-%20debate%20on%20improving%20air%20quality%20-%20HC%20-%20280618.pdf

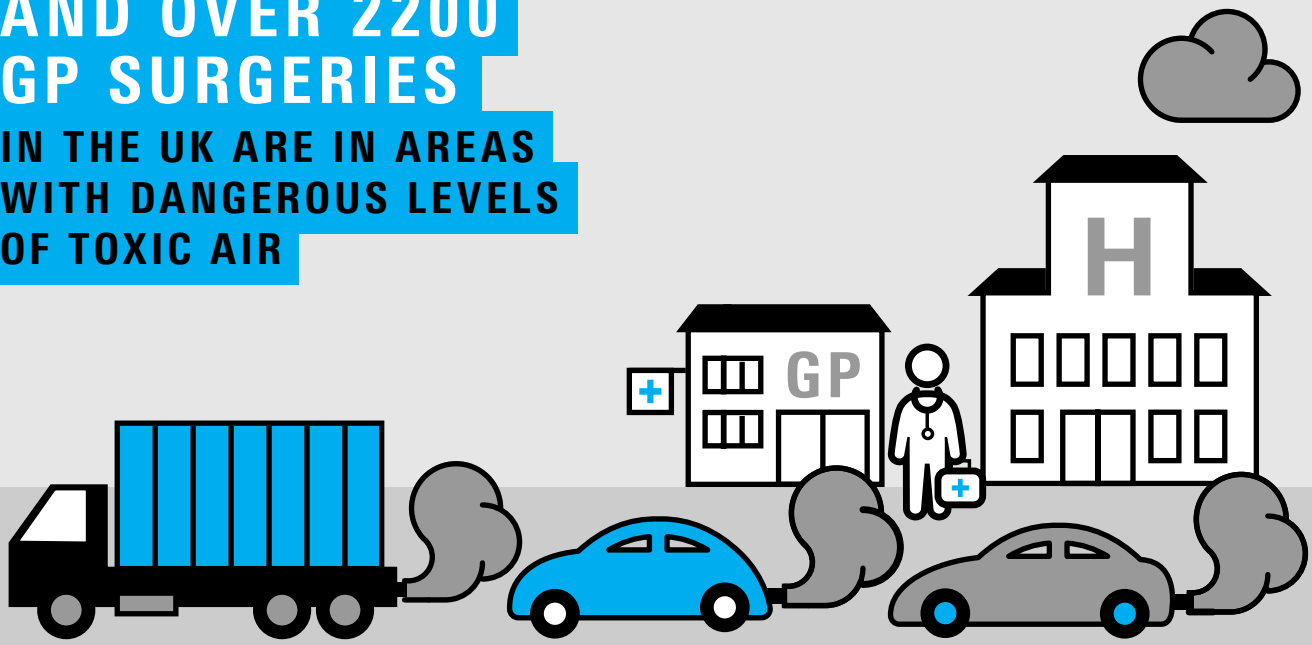
Nor has there been a centrally-driven effort to collate data from civil society organisations and members of the public who are monitoring air quality in their local area.

A new review by Public Health England of interventions to improve air quality and reduce exposure, due for publication in early 2019, is not expected to include an evaluation of exposure reduction outcomes for children. **This means that there is no government-sponsored guidance on what works best for children.**

Around schools and nurseries, hospitals and surgeries, air quality is often at illegal and unsafe levels. In 2017, 37 out of 43 zones in the UK exceeded the legal limit value for annual mean NO_2 levels,[41] while $PM_{2.5}$ pollution is over the WHO-recommended limit level in 71% of UK towns and cities.[42]

Recent studies by *The Guardian*/Greenpeace and by the British Lung Foundation found that **2,091 schools and nurseries in England and Wales are located close to roads with illegal levels of NO_2,**[43] while **248 hospitals and 2,220 GP surgeries across the UK are in areas with unsafe levels of particulate pollution.**[44]

AROUND 250 HOSPITALS AND OVER 2200 GP SURGERIES IN THE UK ARE IN AREAS WITH DANGEROUS LEVELS OF TOXIC AIR



41 DEFRA (2018). Op. cit.
42 Unicef UK (2018). Op. cit.
43 *The Guardian* and Greenpeace UK (2017). 'Thousands of British children exposed to illegal levels of air pollution', www.theguardian.com/environment/2017/apr/04/thousands-of-british-children-exposed-to-illegal-levels-of-air-pollution
44 British Lung Foundation (2018). Toxic air at the door of the NHS, www.blf.org.uk/take-action/campaign/nhs-toxic-air-report.

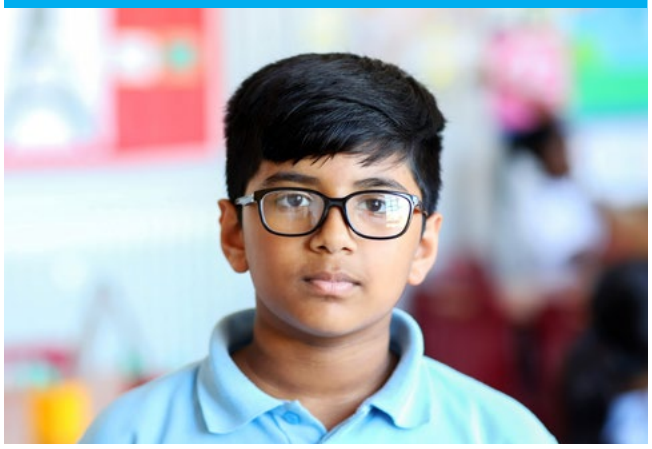
RECOMMENDATION:

A NATIONAL ACTION PLAN TO PROTECT CHILDREN

Toxic air in the UK is a national problem that requires national solutions. **The UK government should commit to a Healthy Air for Children Action Plan that sets out a national framework to protect children from toxic air**, scaling up the most effective measures to reduce children's exposure around schools, nurseries, hospitals and doctors' surgeries. This Action Plan should form part of a broader UK strategy that commits to delivering clean, safe and heath-supporting environments for all children in the UK.

The Healthy Air for Children Action Plan should be focused on delivering **measurable outcomes for children's health**, creating the framework for a suite of measures to reduce children's exposure to toxic air. A number of positive examples of measures to raise awareness and reduce exposure among children, young people and their families already exist. An early priority for the Action Plan should be a systematic review of these measures, their outcomes and opportunities for scaling up best practice. A number of possible measures are discussed in the following chapter of this report.

THE UK GOVERNMENT SHOULD COMMIT TO A HEALTHY AIR FOR CHILDREN ACTION PLAN THAT SETS OUT A NATIONAL FRAMEWORK TO PROTECT CHILDREN FROM TOXIC AIR.



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The Action Plan should aim to provide a guiding framework for local government action while ensuring adequate flexibility for local government in determining interventions. The Action Plan should outline examples of best practice and articulate strategic, long-term goals, providing a clear framework against which locally tailored plans may be developed and local government held accountable.

Responsibility for implementing the Action Plan should sit across government departments: recognising that air pollution, its impacts and its mitigation may be supported or hindered by policy decisions across a number of areas, the Action Plan should be subject to the oversight of a cross-government working group responsibility to promote co-ordination across departmental plans, identify areas for interdepartmental collaboration, flag any potential incongruities and set the strategic priorities for the Action Plan and the Little Lungs Fund.

Accountability for the Plan's implementation should lie with a **Cabinet Committee for Healthy Air for Children**, itself informed and supported by the cross-government working group. The Committee should comprise Ministers from across the UK government, with representation from the Department for Environment, Food and Rural Affairs (DEFRA), the Department for Transport (DfT), the Department for Health and Social Care (DHSC) and the Department for Education (DfE).

Ambitious cross-government targets and milestones should be set by the Committee and monitored on a regular basis. Importantly, the Plan should be **child rights-based,** with clear mechanisms to engage children and young people in the decision-making process and to ensure that the Plan speaks directly to their needs.

PROBLEM:
INSUFFICIENT FUNDING TO DELIVER EXPOSURE REDUCTION

Measures supported through UK government funding rarely target health promotion or the protection of children and young people.

The UK government has allocated considerable funding to promote cleaner air across the UK, primarily through cleaner transport infrastructure. For example, investments in electric-vehicle infrastructure and in the retrofitting of public transport. Such measures are of critical importance to protecting children and young people from toxic air, but are insufficient in themselves to mitigate the negative health outcomes among children and young people associated with air pollution.

The rewards of investments in clean transport will be reaped in the medium to long term; **children living in areas of high pollution today – and for the next 10 years while unsafe levels of air pollution remain – are unlikely to feel the benefits in the short term.**

While UK government funding is available to local authorities to implement their own locally owned and designed air quality management plans, local authorities themselves point to insufficient funding as the major limiting factor in implementing these plans effectively.[45] Where funding has been disbursed, it has largely been directed to low-emissions vehicle technology and infrastructure.[46]

Funding and capacity constraints also risk limiting the ability of local government to prioritize air quality measurement and improvement projects. Local governments in England have seen a 49% real-terms reduction in UK government funding since 2010[47] and, in allocating available resources, priority is given to basic services such as primary health care and housing. Very few authorities have a staff member dedicated to overseeing local air quality.

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45 DEFRA (2016). Local air quality management review: Summary of responses, assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/510786/laqm-review-consult-sum-resp.pdf

46 Unicef UK review of DEFRA Air Quality Grant programme spend; DEFRA (2018b). Air quality grant programme, www.gov.uk/government/collections/air-quality-grant-programme

47 National Audit Office (2018). Financial sustainability of local authorities 2018, www.nao.org.uk/report/financial-sustainability-of-local-authorities-2018/

RECOMMENDATION:

RING-FENCED FUNDING AT NATIONAL LEVEL

Rolling out a national plan that prioritizes air quality improvements in areas where children live, learn and play will require significant and dedicated investment from the UK government, above and beyond what is already being spent on air quality improvements. **A Little Lungs Fund is needed to pay for measures that specifically reduce children's exposure to toxic air.**

The Little Lungs Fund should support measures to reduce children's exposure until WHO-recommended limit values are met in 2030, or for as long as it takes to meet these levels. In its first year, the disbursal of the Little Lungs Fund should be prioritised in the most polluted primary schools and nurseries in the UK on measures that establish a basic level of air quality monitoring, air quality improvement and exposure reduction. A total of 2,091 schools and nurseries have been identified as the most exposed to NO_2 (see Table 1, page 20).

A LITTLE LUNGS FUND IS NEEDED TO PAY FOR MEASURES THAT SPECIFICALLY REDUCE CHILDREN'S EXPOSURE TO TOXIC AIR.

YEAR 1

Based on the costs of existing efforts, an estimated minimum budget of **£215 million** is needed in the first year. This would cover:

- Essential monitoring of air pollution levels at the 2,091 schools and nurseries that have been identified as the most exposed to NO_2
- Audits of these schools and nurseries to determine what is needed to reduce pollution exposure
- Urgent exposure reduction measures to ensure children can breathe healthy air.

SUBSEQUENT YEARS

Substantial additional funds in the Little Lungs Fund should be used to:

- conduct further air quality and exposure audits in all schools and nurseries across the UK – not just those identified as having the highest exposure.
- implement comprehensive and tailored exposure reduction plans for all schools with unsafe levels of toxic air, based on an evaluation of best practice.
- Launch awareness raising campaigns focused on meeting the needs of children and young people.

MULTI-YEAR FUNDING

The Little Lungs Fund should be provided for in the next Spending Review, with a commitment to mutli-year funding in order to ensure that a basic package of services and interventions is implemented in child-centric locations across the UK.

The Little Lungs Fund should offer additional resources to complement existing funding mechanisms targeted at air quality improvements, and the Cabinet Committee for Healthy Air for Children should communicate to local authorities a clear narrative on when and how projects funded under the Little Lungs Fund can be developed in combination with those funded from other financial pots, such as the Air Quality Grant Programme.

Resources under the Little Lungs Fund should be awarded on a needs-based rather than competitive basis, in line with clear disbursal criteria that align with the strategic priorities set under the Healthy Air for Children Action Plan.

The implementation of these measures should be **accompanied by a robust monitoring and evaluation process in order to support the development of a strong evidence base** around the efficacy of different intervention approaches. Reporting under the Little Lungs Fund should be sufficiently flexible so as to enable local government to report on impacts beyond quantitative air quality improvements, recognising that exposure reduction measures are likely to deliver a number of co-benefits for the health and wellbeing of the local population, including a shift away from the use of personal cars towards more active travel, bringing health benefits associated with increased physical activity, and a reduced risk of road accidents for children on their way to and from school.

Reporting periods should also account for possible time lags in anticipated impacts following the introduction of certain interventions, particularly if these involve behaviour changes.

Core central and local government funds should be allocated to ensure sufficient human resources are available for the management of the Little Lungs Fund and of the projects to which it is disbursed, including any necessary additional staff in the Joint Air Quality Unit and a dedicated air quality officer in those local authorities where air pollution is at illegal levels.

TABLE 1: ESTIMATED COSTS FOR ESSENTIAL MEASURES TO BE FUNDED UNDER A LITTLE LUNGS FUND IN YEAR 1

Intervention	Cost per school	Subtotal*
School and nursery audits	£17,847	£37,339,286[i]
Air filtration units in classrooms	£5,000	£10,455,000[ii]
School Street scheme	£20,667	£43,214,000[iii]
Outdoor air quality monitors	£68,000	£122,323,500[iv]
	Total	**£213,331,786**

* Cost per school multiplied by 2,091 – the number of polluted schools located close to roads with illegal levels of NO_2.[48]

(i) Based on the costs of the Mayor of London's School Air Quality Audit Programme, with the overall cost of the programme (£1,250,000) divided by the 70 institutions (50 primary schools, 20 nurseries) serviced; Mayor of London (2018), 'Mayor's air quality audits & £1m fund to protect pupils from pollution', www.london.gov.uk/press-releases/mayoral/mayor-launches-air-quality-audits-and-1m-fund

(ii) Based on the costs of installation of air filtration units at a primary school in London; Commercial Air Filtration (2017), 'Notting Hill Prep Air Filtration – Case Study', www.allergycosmos.co.uk/commercial-air-filtration/blog/air-filtration-for-london-based-primary-school

(iii) Based on the costs of a School Streets scheme implemented by the City of Edinburgh Council, with the overall cost of the scheme (£186,000) divided by the 9 schools included in the scheme; City of Edinburgh Council (2016), 'Transport and Environment Committee – School Streets pilot project evaluation', www.portobellocc.org/pccpn/wp-content/uploads/2016/08/Item_7.2___School_Streets_Pilot_Evaluation.pdf

(iv) Based on DEFRA estimates of air quality monitoring equipment per school, using mid-range costs; DEFRA (2006), 'A Guide for Local Authorities Purchasing Air Quality Monitoring Equipment', uk-air.defra.gov.uk/assets/documents/reports/cat06/0608141644-386_Purchasing_Guide_for_AQ_Monitoring_Equipment_Version2.pdf

48 *The Guardian* and Greenpeace UK (2017). Op. cit.

3 PRIORITIZING CHILD-CENTRIC MEASURES

There remains limited evidence around measures to reduce children and young people's exposure to toxic air.

While short-term, localised impacts on air quality can be assessed through pollutant monitoring and traffic surveys, long-term air quality improvements are harder to measure without a comprehensive network of monitoring stations and a systematic process of pilots and assessments.

Furthermore, an intervention that yields positive impacts in one location may not be so successful in another – local conditions such as road layout and traffic flow are important determinant factors, as is the manner in which a given intervention is enforced.

Nevertheless, **a number of studies and pilot projects have identified simple, effective and often low-cost ways of reducing a child's exposure to air pollution**, with measurable results.

In this chapter, we explore a number of interventions implemented in the UK and aimed at reducing emissions in child-centric locations or at encouraging behaviour changes that reduce children's exposure to air pollution.

Unicef UK believes that these measures should be included as minimum necessary components of a Healthy Air for Children Plan, supported by a Little Lungs Fund.

3.1 EMISSIONS REDUCTION IN CHILD-CENTRIC LOCATIONS

Emissions reduction measures already being implemented by the UK government – clean air zones, for example, and the promotion of active urban travel – should be prioritised in the near term in child-centric locations such as schools and nurseries, GP surgeries and hospitals, where young and vulnerable children are likely to be gathering.

While there are limitations on the extent to which a 'pocket' of clean air can be created within a city owing to the fluid nature of the air we breathe, experience of street closures around schools and of city-wide car-free days indicates that substantial reductions in pollution concentrations can be achieved, along with wider benefits to public health as more people walk or cycle.

3.1.1 AUDITS OF CHILDREN'S EXPOSURE HOTSPOTS

Currently there is only limited monitoring and reporting of air quality in schools and nurseries, and assessments of the effectiveness of air quality improvement measures undertaken by the UK government have been at a population level rather than focused on children and their exposure.

The first step in prioritising emissions reduction measures should therefore be a systematic evaluation of air quality levels in child-centric locations and of the emissions reduction measures most likely to yield positive outcomes for children in those areas. Audits of schools and nurseries (such as those undertaken in London – see Box 2, below), and of GP surgeries and hospitals, offer a means of identifying those locations where children's exposure to air pollution is particularly high, and also allow for the setting of a baseline air quality level against which the effectiveness of subsequent interventions may be measured.

BOX 2: TRANSPORT FOR LONDON SCHOOL AND NURSERY AUDITS

In London, £250,000 has been invested under the London Mayor's Air Quality Fund in the Mayor's School Air Quality Audit Programme, developed by the Greater London Authority's Air Quality Team and Transport for London (TfL). **The Programme was commissioned to identify sources of emissions inside and outside 50 primary schools in London's most polluted areas, and to formulate measures to reduce children's exposure to air pollution and rapidly reduce emissions.**

The audits identified a number of recurring issues in the audited primary schools leading to exposure to air pollution, including heavily-trafficked and congested roads, high numbers of heavy-duty vehicles in the vicinity of the schools, unsafe parking, engine idling during school drop-off times, and unsafe crossing locations that meant children must wait for long periods at the side of the road before being able to cross.

On the basis of these audits, the Programme identified a **toolkit of measures** to reduce children's exposure to air pollution and to reduce polluting emissions themselves. Suggested measures include:

- monitoring of key pollutants inside and outside schools
- traffic-reducing measures such as filtered permeability on school roads (e.g. planters placed at the end of roads to prevent cars entering while allowing bicycles through)
- green screens (e.g. hedges around schools)
- the promotion of cleaner walking routes to and from school.

Following publication of the results of the Programme in May 2018, **the Mayor's Office announced a new £1 million fund for the implementation of a range of air quality measures at the worst-affected primary schools in London.**

3.1.2 ACTIVE TRAVEL SCHEMES

Active travel schemes, such as Living Streets (see Box 3, below), offer a low-cost way of mitigating air polluting-emissions from traffic around the school gates. Through building understanding among children, young people and their care-givers of how they can minimise their own exposure to air pollution by taking less-polluted routes to school and by choosing active travel over car journeys, these schemes have been shown to reduce car trips to school overall. (However, note that seasonality and the specific characteristics of the site of the school are expected to lead to variation in that reduction.)

Active travel schemes can also instil in children and young people the importance of being active while also advocating for active lifestyles and raising awareness of how our behaviour affects the quality of the air around us. Such schemes can support cross-government objectives, for example those laid out in the Clean Growth Strategy and Childhood Obesity Strategy to promote more active travel as a means of reducing air pollutants and of maintaining a healthy weight.

BOX 3: LIVING STREETS' WALK TO SCHOOL CHALLENGE

Living Streets works with over 2,000 schools across the country to engage children in the year-round Walk once a Week (WoW) challenge. As part of the challenge, pupils use the interactive WoW Travel Tracker to record their travel method to school every day. If they succeed in walking or taking a bike, scooter or skateboard to school once a week for a month – or if they take part in the Park and Stride scheme – they are awarded a 'strider' badge which has been designed by pupils in an annual competition. On average, walking rates increase by around 23% at WoW-participating schools, and the number of cars at the school gates falls.[49]

The **Park and Stride** scheme allows families who live far away from their school to get the benefits of walking part of their journey to school. They are encouraged to do so either by taking public transport only part of the way and walking for the remainder of the journey, or by driving to a local car park instead of driving all the way up to the school gates. Living Streets provides a start-up guide for schools who are considering participation, including information on potential parking places located a suitable distance from the school.

Children scooting to school for Clean Air Day

49 Living Streets (undated). Swap the School Run for a School Walk: Our solution for active children, healthy air and safe streets, www.livingstreets.org.uk/media/3618/ls_school_run_report_web.pdf

3.1.3 SCHOOL STREET CLOSURES

School Streets schemes have been trialled at a number of primary schools across the country, including in Edinburgh and London. Schools and councils implementing the School Streets schemes close the road immediately outside the school gates during drop-off and pick-up times to reduce congestion and to provide a safer space for children. The schemes have been shown to reduce overall traffic flows and speeds on school streets and on the surrounding network. As a result, local communities have reported that the streets feel safer. The schemes have also promoted active travel to school, reducing car trips and increasing walking trips.

Usually implemented at school drop-off and pick-up times, these schemes are unlikely to have an impact on children's exposure during their time in the playground over the course of the school day, but may have a positive impact overall by reducing concentrations during the school run.

3.1.4 CHILD-FRIENDLY CLEAN AIR ZONES

The government has failed so far to maximise the opportunities presented by clean air zones to create health-promoting urban spaces. Clean air zone design should seek not only to restrict access to polluting vehicles but also to create an environment that enables children and their families to make healthy and sustainable transport choices, through facilitating walking, cycling and the use of low-emissions public transport. A child-friendly approach would guide councils to prioritise the building of parks and green spaces, cycle lanes and walkways away from polluted roads and in areas where children and their families live, learn and play. [50]

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3.1.5 AIR FILTRATION IN SCHOOLS AND NURSERIES

Children may be exposed to air pollution while inside classrooms or playrooms at nurseries. Air filtration in these spaces can be an efficient way of reducing exposure: air filtration units installed at a primary school in London yielded an 86% reduction in $PM_{2.5}$ concentrations in the classroom compared to ambient concentrations.[51] Air filtration systems are often an expensive option, however, and are unlikely to be available to all schools in the absence of dedicated government funding.

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50 Arup (2017). Cities Alive: Designing for Urban Childhoods, www.arup.com/perspectives/cities-alive-urban-childhood

51 Commercial Air Filtration (2017). Notting Hill Prep Air Filtration – Case Study, www.allergycosmos.co.uk/commercial-air-filtration/blog/air-filtration-for-london-based-primary-school/

3.2 ENCOURAGING BEHAVIOUR CHANGE TO REDUCE CHILDREN'S EXPOSURE

Delivering long-term, sustainable reductions in children's exposure to toxic air will depend not only on emissions reduction measures but also on the promotion of positive behavioural change.

Awareness-raising and education campaigns will not lead to immediate improvements in air quality but, by involving children in decisions that affect their own health and environment, can be expected to have a positive impact on children's choices and behaviours both now and in the future, and do so at low cost to the government.

3.2.1 CHILD-FOCUSED PUBLIC HEALTH MESSAGING

Children and young people have told Unicef UK that they want to receive information on air pollution and that they want this to be easily accessible and relevant to them.[52] From a rights perspective, the provision of readily accessible and understandable information on the nature of this threat to child health – and on ways to reduce it – is a core duty of government: as provided in Article 17 of the UN Convention on the Rights of the Child, **the UK government is bound to protect every child's right to receive information that is important to their health and wellbeing.**

In practice, this means not only designing information and outreach materials in a way that is engaging, fun, readily available and easily understandable, but also considering the likely interpretation of this information by children and young people and providing actionable guidance on ways to reduce their exposure. Unicef's principles for effective communication with children and young people underline the importance of foregrounding children and young people's needs, perspectives and points of view, recognizing that what adults need and what they take from communications materials is rarely the same for children and young people.[53]

The Scottish government's education tools 'Air Pollution Detectives' and 'Clean the Air' are good examples of tools designed for children and young people that provide onward steps for those wanting to tackle toxic air.[54]

A first priority under the Healthy Air for Children Action Plan should be to identify a set of principles for child-friendly guidance that is aimed at reducing the exposure of vulnerable children and young people to peak air pollution hotspots. This may include practical advice such as walking along residential roads to school rather than along a main road or, for children who are more vulnerable to the effects of breathing polluted air – children with asthma or cystic fibrosis, for example – taking steps to ease possible symptoms, such as by carrying a reliever inhaler on days of high pollution.

Such guidance would empower children and young people – especially those with pre-existing respiratory conditions – and their caregivers to mitigate their exposure to harmful air pollutants. Children and young people should themselves play a role in developing this guidance to ensure that it is meaningful and relevant to them.

52 Unicef UK focus groups; available on request.

53 UNICEF (2011). Communicating with Children: Principles and Practices to Nurture, Inspire, Excite, Educate and Heal, www.unicef.org/cwc/files/CwC_Final_Nov-2011(1).pdf

54 Air Quality in Scotland (2019) Education, www.scottishairquality.scot/education/

3.2.2 NATIONAL CAMPAIGNS FOCUSED ON SOLUTIONS

Studies on the provision of air pollution data have found that people feel powerless if presented with information that is not accompanied by advice on tangible steps they can take to protect themselves.[55]

DEFRA has indicated its intention to help individuals and organisations "understand how they could reduce their contribution to air pollution, showing how this can help them protect their families, colleagues and neighbours."[56] National campaigns offer one means of delivering on this commitment, raising awareness among children, young people and their care-givers of the links between air pollution and children's health and promoting the child-focused public health messaging discussed above to a wider audience.

These campaigns may centre on sustained information provision or on public 'stunts' that engage a large number of people in a joint activity on a given day, as in the case of Clean Air Day (see Box 4, below). Research by the King's Fund indicates that large-scale public campaigns can be effective in promoting healthy behaviours if they are designed and delivered in the right way.

Information needs to be tailored to the target audience to capture their attention; consistent messaging should be promoted by multiple different sources, over time and in different places frequented by the target audience; and positive messaging about the benefits to be reaped from behaviour changes (such as walking to school via residential streets) are likely to be more effective in fostering real change than risk-focused messaging around the health impacts of undesirable behaviours (such as driving to school or engine idling outside the school gates).[57]

BOX 4: CLEAN AIR DAY

Clean Air Day[58] is a national campaign to raise awareness of air quality issues and to promote positive behaviour change.

On Clean Air Day 2018 (21 June 2018), thousands of people took part in events to raise awareness of air pollution as an urgent public health issue. Schools, community groups, local authorities, businesses, universities, hospitals and individuals, were involved in hosting a wide array of activities.

Raising awareness of the issues – the harm caused by air pollution and what individuals can do to reduce and avoid it – was central to the campaign, and children and young people were a key audience.

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In Southampton, for example, children and young people from schools including Sholing Junior and Swaythling Primary led presentations on air pollution to fellow pupils. In Edinburgh, Sciennes Primary took part in a Clean Air Day procession down The Mound, the climax of a year of activities and learning about air pollution. And at Corpus Christi primary school in Lambeth, London, a week of activities included celebrating the installation of a pollution-screening hedge. At least 550 events happened on the day, involving around 2,000 organisations. Some 1,750 broadcast and press items were generated by the campaign. On 21 June itself, **#cleanairday** trended on Twitter for eight hours. Clean Air Day organisers, Global Action Plan, carried out 'before' and 'after' opinion polls. These indicated that public understanding of key air pollution issues increased over the period of the campaign, and that more people started taking action to cut air pollution.

55 Robertson, R. (2008). Using Information to Promote Healthy Behaviours, King's Fund report, www.kingsfund.org.uk/sites/default/files/field/field_document/information-promote-healthy-behaviours-kicking-bad-habits-supporting-paper-ruth-robertson.pdf

56 DEFRA (2018b). Op. cit.

57 Robertson (2008). Op. cit.

58 www.cleanairday.org.uk

3.2.3 CHILD-FRIENDLY REAL-TIME ALERTS

In addition to learning platforms aimed at raising awareness and promoting long-term behaviour change, **child-friendly health messaging is also needed in the form of time-sensitive alerts that circulate clear advice during times of peak pollution**.

Currently, the UK's Daily Air Quality Index and air quality forecast provide routine information on air pollution levels across the UK, but this information is not easily findable or interpretable by the general public. Certain local authorities have air pollution information services that alert subscribers to periods of peak pollution (such as airTEXT – see Box 5, below), but there exists no nationally co-ordinated real-time system to alert vulnerable populations, including young children with respiratory disease, during periods of heightened risk, nor any health-led guidance on steps they may take to reduce their exposure. DEFRA has signalled its intention to provide "personal air quality messaging systems to inform the public, particularly those who are vulnerable to air pollution, about the air quality forecast, providing clearer information on air pollution episodes and accessible health advice."[59] It is critical that this system is designed to be child-friendly and child-centric and that information on peak air pollution episodes is accompanied by clear guidance on what children, young people and their care-givers can do to protect themselves.

Without the inclusion of actionable advice, information alerts risk generating fear among target audiences rather than empowering them to take action.

BOX 5: *air*TEXT

The Department for Environment, Food and Rural Affairs (DEFRA) noted in 2017 that **"clear public health messages enable the public to reduce their personal exposure"** and named *air*TEXT as an example of successful implementation of health communication through air quality services.[60]

***air*TEXT is a free service for the public, providing air quality alerts by text message, email and voicemail.** The service offers three-day forecasts of air quality, pollen, UV and temperature, along with health advice based on the UK government's Daily Air Quality Index (DAQI) system for communicating air quality information. These alerts help people to know when and where air pollution levels are likely to increase and are intended to guide users in their decisions for the day, for example, whether or not to take medication with them if they have medical conditions such as asthma that are aggravated by air pollution.

*air*TEXT is an independent service, operated by CERC (an environmental services provider), and currently only serves 33 London local authorities, along with a handful of places outside of London (Cambridge, Chelmsford, Colchester, Slough, Three Rivers and Thurrock), reaching around 20,000 registered users.

The service is operated in partnership with the *air*TEXT Consortium, which includes representatives of all the *air*TEXT local authorities, as well as the Greater London Authority, Public Health England and the Environment Agency. The cost of maintaining the service varies depending on the requirements of the local authority, but is typically financed by a small subscription per local authority per year, to cover the cost of alerts, IT infrastructure, and the expert team that maintain the quality of the forecasts on which the alerts are based.

Were a service like *air*TEXT to be supported by UK government funding, it could be expanded to cover the whole of the UK, ensuring that vulnerable children across the country have access to essential information needed to ensure they stay healthy when the air around them is toxic.

59 DEFRA (2018b). Op. cit.
60 DEFRA/PHE/LGA (2017). Op cit.

3.2.4 ENGAGING CHILDREN AND YOUNG PEOPLE IN POLICY-MAKING

Exposure reduction measures targeted at children and young people are most likely to be effective in delivering positive and sustainable outcomes if they are designed and implemented in collaboration with children and young people themselves.

Engagement of children and young people may take many forms, including:

- the involvement of children and young people in data collection and advocacy in their local area (see Box 6, right)
- the participation of children and young people in public consultations on clean air interventions such as clean air zones
- collaboration between local government and parallel youth bodies such as the Children's Mayor in Leeds[61] or the National Health Youth Forum (see Box 7, p. 29)
- involvement of children and young people in the monitoring of air quality in their own school, including through the use of diffusion tubes, as in Unicef UK's own OutRight programme[62]
- the inclusion of air pollution and its health impacts in the school curriculum, supported by child-friendly education materials and resource packs such as those developed by Unicef UK,[63] Friends of the Earth[64] and Greenpeace.[65]

As a first step, a Healthy Air Youth Forum should be established as part of the Healthy Air for Children Plan to create a forum in which children and young people may share their views and questions about air pollution and its impact on their health. It would also provide a mechanism through which the UK government may consult at an early stage with children and young people on those interventions that are most likely to lead to meaningful change.

BOX 6: OUTRIGHT

OutRight is Unicef UK's youth campaigning platform. It empowers children and young people to realise their own rights and to speak out in support of the rights of all children and young people.

In 2018, OutRight activities in participating schools across the UK involved raising awareness of air pollution among children and young people and of the impact that exposure to air pollution has on both their health and their access to a safe and clean environment.

They were encouraged to use Unicef UK-provided **diffusion tubes** and learning and campaign resource packs to monitor air quality in their schools over the course of four weeks. They were then asked to write to their local Member of Parliament asking them to take action to improve local air quality.

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On 20 November, **World Children's Day**, children and young people, teachers and youth workers were encouraged to share their activity on social media and to demonstrate the actions they have taken to stand up for children's rights.

Over 1,000 schools and youth groups in the UK registered to take part in OutRight's air pollution activities and around 3,000 children and young people submitted campaign postcards to Unicef UK, calling on the Secretary of State for Environment, Food and Rural Affairs, Michael Gove, to take urgent action on air pollution.

61 Leeds City Council (2018). 'Leeds Children's Mayor', breezeleeds.org/have-your-say/leeds-childrens-mayor
62 Unicef UK (2018). 'OutRight is Back', www.unicef.org.uk/rights-respecting-schools/outright/
63 Unicef UK (2018). OutRight: Children's Activity Pack, www.unicef.org.uk/rights-respecting-schools/wp-content/uploads/sites/4/2018/10/OutRight_childrens-pack1_Final.pdf
64 Friends of the Earth (2018). Clean Air Schools pack, friendsoftheearth.uk/clean-air/clean-air-schools-educating-generation-about-air-pollution
65 Greenpeace (undated). Air Pollution Health Crisis: Teaching Resources, www.eco-schools.org.uk/wp-content/uploads/2016/11/Air-Pollution-Teachers-Pack.pdf

BOX 7: NHS YOUTH FORUM

Since 2013, the British Youth Council has run a national NHS Youth Forum, made up of young people from all over the country who have a passion for improving health services. The Forum, which has a partnership arrangement with Public Health England and Department of Health and Social Care, gives a voice to young people to express their thoughts on the health issues that matter most to them.

The Youth Forum's core aims are to:

- ensure that young people's voices are present in the national programmes of work in NHS England
- be a 'critical friend', exploring aspects of health that do or do not work well for young people and suggesting improvements to health services for young people
- encourage other young people to get actively involved in their own healthcare.

Since its inception, the Youth Forum has, among other things, brought about significant changes to the NHS complaints policy so that young people's feedback is recognised and valued, advocated for better mental health services and contributed to a Youth Select Committee report on mental health,[66] and developed and disseminated a good-practice guide to new NHS England programmes demonstrating how to effectively engage young people in their services.[67]

66 UK Parliament (2015). 'Youth Select Committee publish young people's mental health report', www.parliament.uk/business/news/2015/november/youth-select-committee-report/

67 British Youth Council (undated). NHS England Youth Forum, www.byc.org.uk/uk/nhs-youth-forum

CONCLUSION

Current policies and funding are failing to protect children and young people from toxic air. Children are the most vulnerable to harm, yet there is minimal funding, few targets and scant health measures in place with the specific aim of mitigating the harmful effects of air pollution on their health and development. Children's exposure to toxic air has been ignored for far too long: **now is the time for action**.

There are positive examples of interventions designed explicitly to reduce children's exposure to air pollution, both those implemented by local authorities and supported by central government funding, and those originated by the rich network of civil society organisations working to tackle air pollution in the UK. However, in the absence of government co-ordination and a substantial uplift in funding for measures aimed at exposure reduction, **these efforts are piecemeal, offering short-term and localised improvements only.** For local authorities already struggling to deliver basic services on a reduced budget, a ramping up in air quality improvement measures remains out of reach.

A national plan of action is required, one that recognises the disproportionate risk that air pollution poses to children and young people across the UK and that commits political will and substantial resourcing to reducing their exposure to toxic air at the same time as tackling air pollution at its source.

UNICEF'S RECOMMENDATIONS

If children's health is to be protected today and in the future, there is a **pressing need for legally binding targets** to meet WHO-recommended PM limit levels and urgent action to meet existing targets on NO_2 levels, **a long-term Healthy Air for Children Action Plan** that prioritizes child health, and **a ring-fenced Little Lungs Fund** to be spent by central and local government on exposure reduction measures.

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