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Sustainable development in the UK: air quality policy

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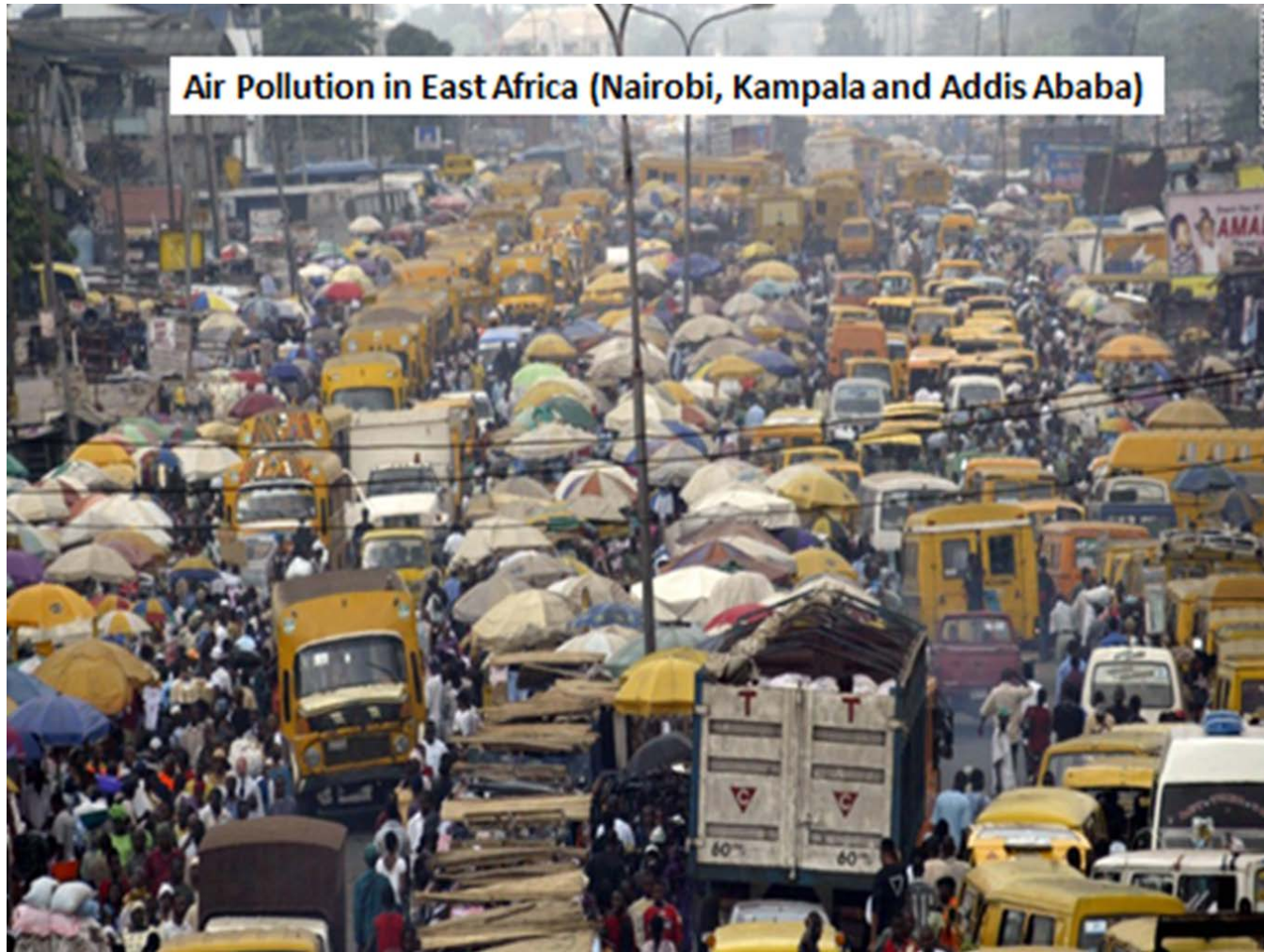


Air Quality – Global Perspective

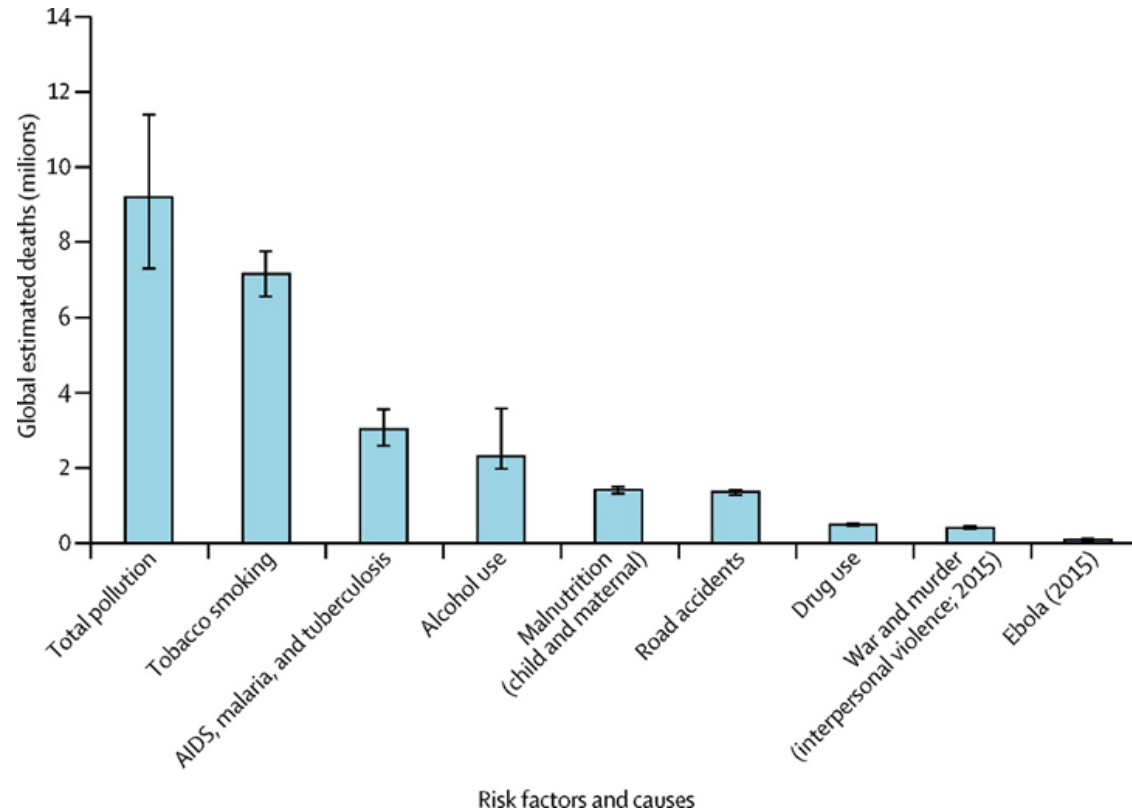
- World's largest environmental risk to health
- A global multi-sectoral development challenge, representing a major health, economic and social threat
- Air pollution estimated to cause **7 million premature deaths** worldwide each year
 - 88% in low and middle income countries
- Over **90% of the world's population** live in places where World Health Organisation air quality guidelines are not met



Air Pollution in East Africa (Nairobi, Kampala and Addis Ababa)



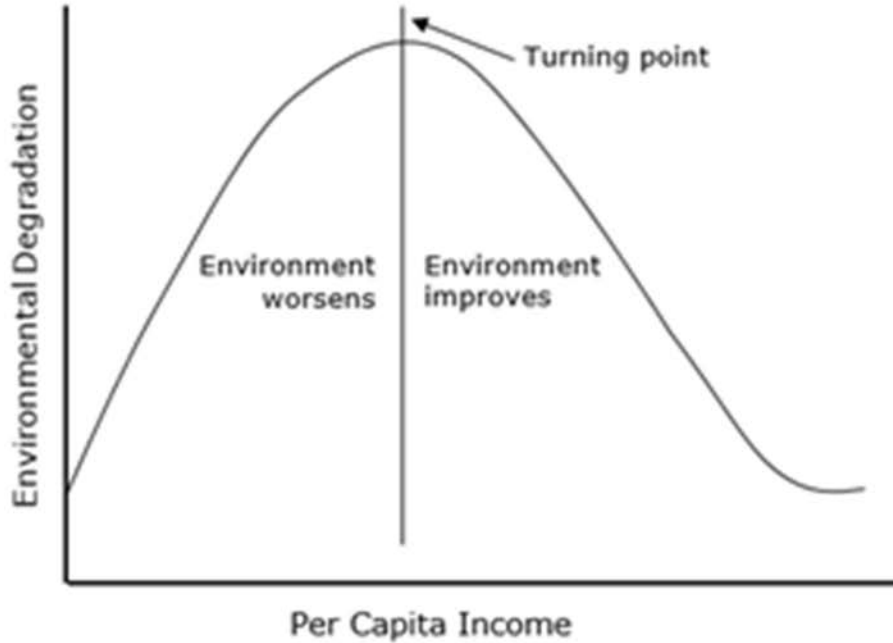
Air Pollution – Global Disease Burden



The Lancet Commission (2017: 15) estimates annual global deaths due to air pollution risk factors at between 5.7-7.3 million - equivalent to one in ten deaths.



Economic Development (Kuznet's Curve)



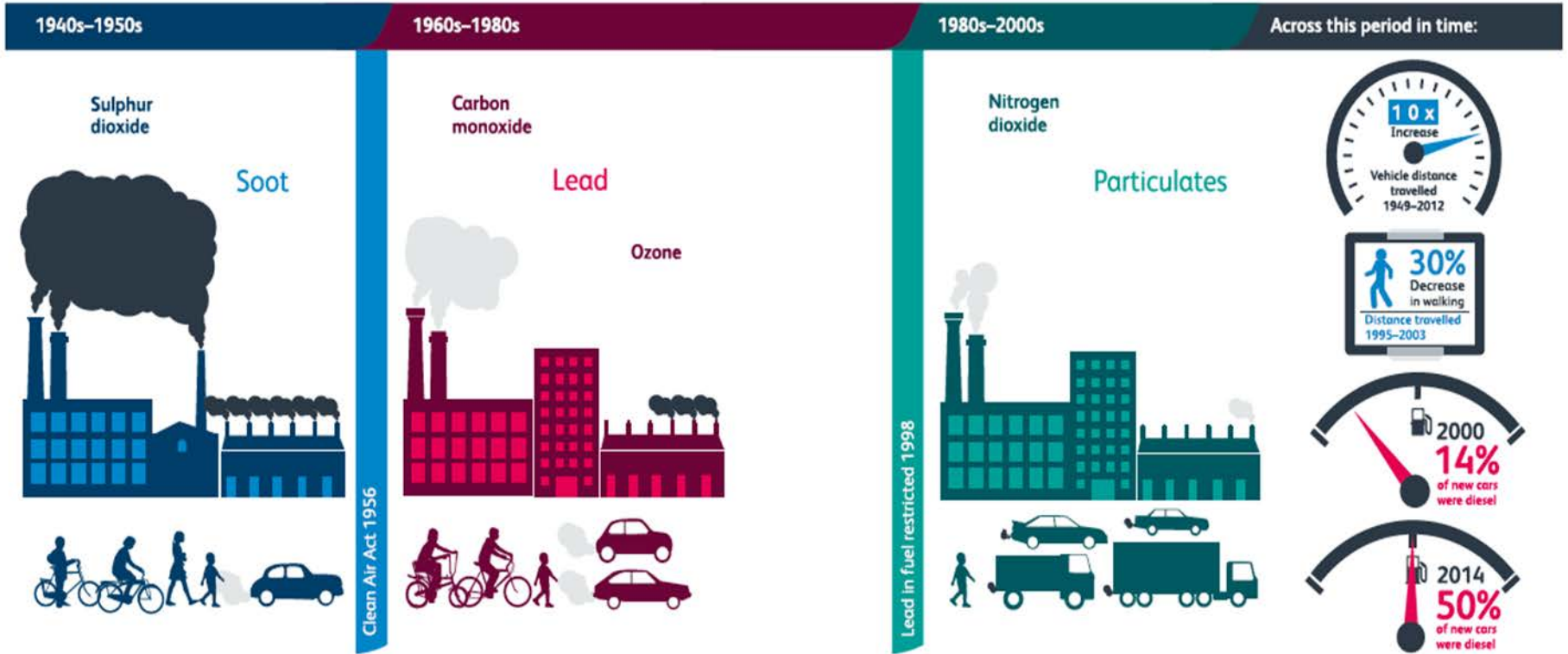
The great London smog of 1952



Delhi smog 2017



Context – Air Pollution in the UK

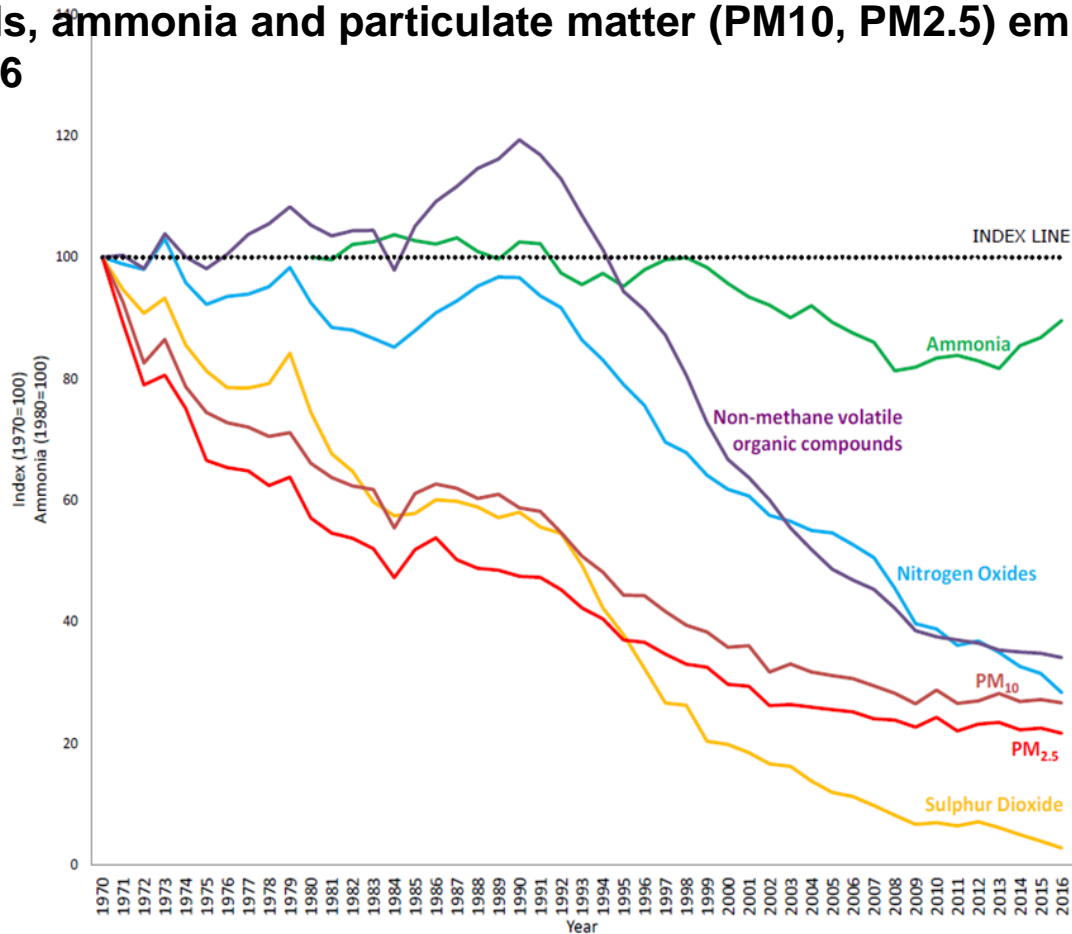


Source: RCP 2016. Every breath we take: the lifelong impact of air pollution

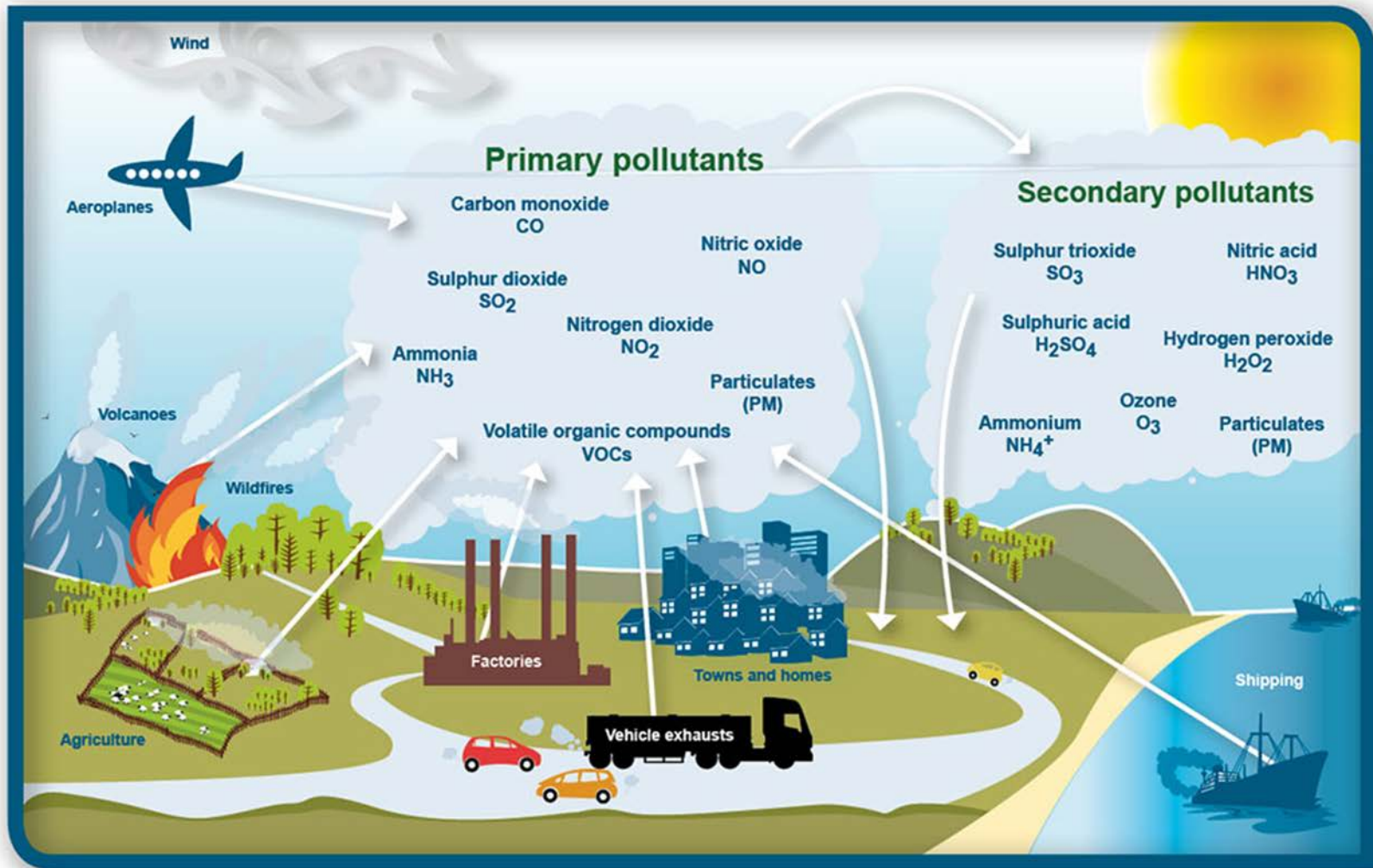


Context - Air Pollution Trends in the UK

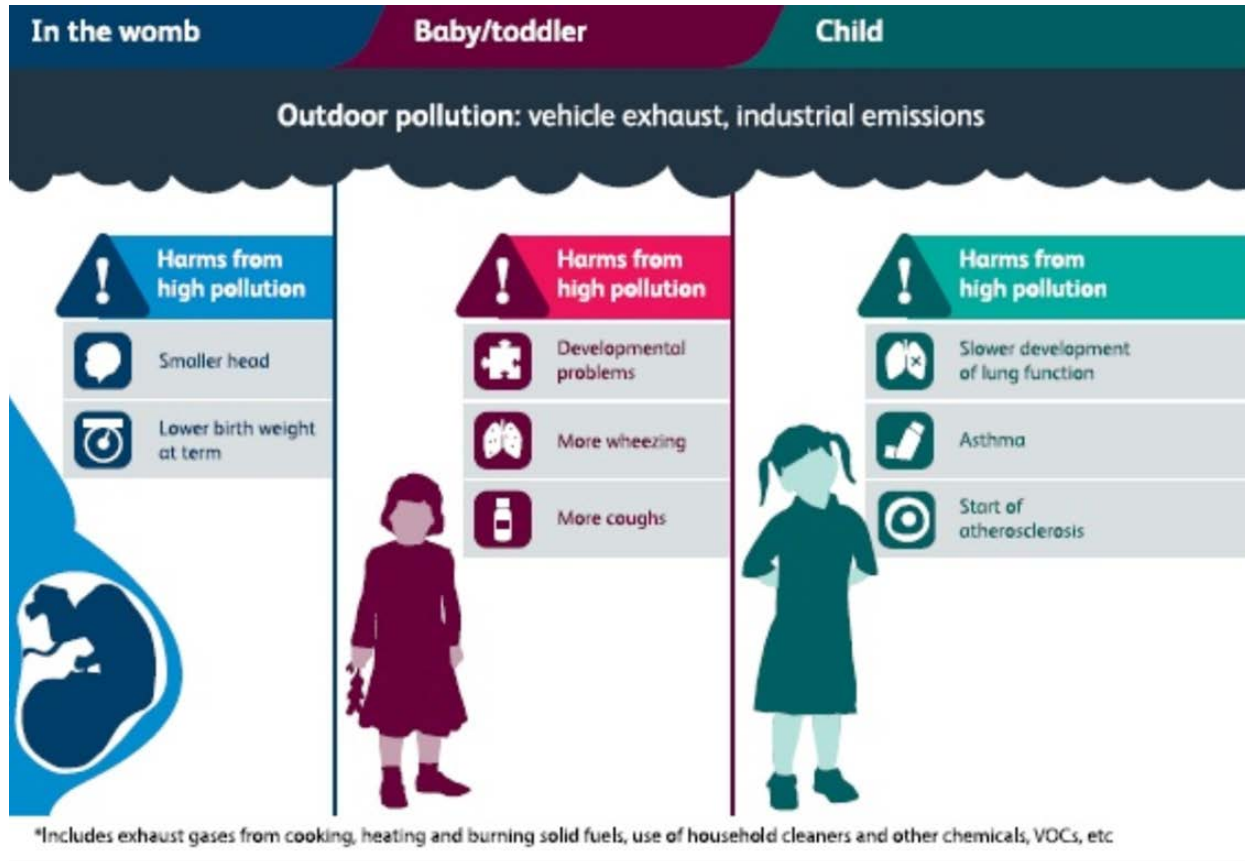
Trends in UK sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and particulate matter (PM10, PM2.5) emissions 1970 – 2016



Context - Sources of Air Pollution



Air Pollution – Lifecourse Health Impacts



Air Pollution – Lifecourse Health Impacts



Air Quality – UK Public Health Impact

- Public health impact

Approximately **34,000 premature deaths** each year

Reduction in life expectancy by **up to 6 months**¹

Attributable mortality fraction **2.5-8%** by local authority²

- Direct and indirect costs

Economic burden in excess of **£20bn** per year³

1) Royal College of Physicians Every breath we take: the lifelong impact of air pollution (2016)

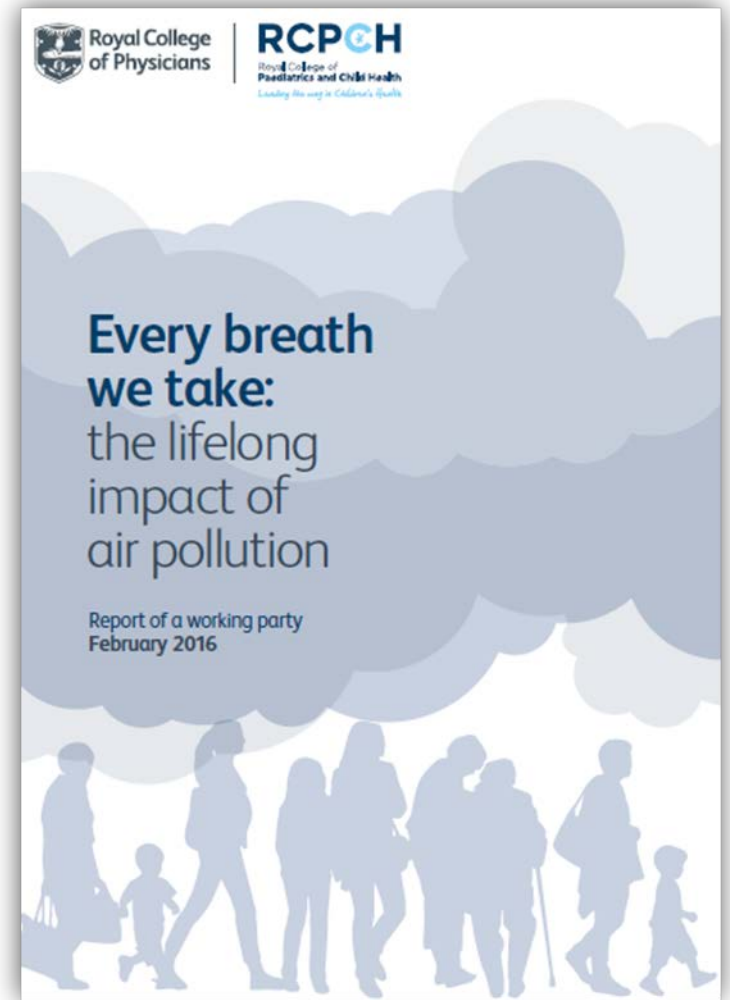
2) PHE, Estimating Local Air Pollution Mortality Burdens (2014)

3) HM Treasury, “Air Quality: Economic Analysis” Green Book (2015)



Who is most at risk from air pollution?

- Air pollution is harmful to everyone
- Greater exposure
 - live in deprived areas, (often have higher levels of air pollution)
 - live, learn or work near busy roads
- More vulnerable
 - age (e.g. children, older people)
 - existing medical conditions



Air Pollution – A Briefing for Directors of Public Health

Overview

1. Getting to grips with air pollution – latest evidence and techniques
2. Understanding air pollution in your area
3. Engaging local decision- makers about air pollution
4. Communicating with the public during air pollution episodes
5. Communicating with the public on the long term impacts of air pollution
6. Air pollution: An emerging public health issue. Briefing for elected members



LGA, DEFRA, PHE 2017. *Air quality: a briefing for directors of public health.*
Available at <https://www.local.gov.uk/air-quality-briefing-directors-public-health>



Local Air Quality Action

Does the plan adequately consider the public health impact of current levels of exposure to pollutant levels, in particular where these are above UK guidelines/ WHO guidelines? <i>Recognition that statutory limits for pollutants are for the protection of human health.</i>				
Action Areas	Inequalities	Wider Determinants & Co-benefits	Stakeholder Engagement	Changing Attitudes & Behaviour
Source Reduction	<p>(a) Does the plan address inequalities in adverse health outcomes from pollution and include actions specifically to address inequalities?</p> <p>(b) Does the plan demonstrate the intention to deliver maximum benefit for those that are most vulnerable (individuals/ settings)</p> <p><i>Examples of vulnerable individuals include children, the elderly and those with co-morbidities such as asthma. Settings to consider include schools, care homes and hospitals.</i></p>	<p>(a) Does the plan consider and include options to address air quality that deliver health co-benefits. For example:</p> <ul style="list-style-type: none"> Physical activity Community cohesion Mental health <p><i>This provides an opportunity to align action on air quality including return on investment with other public health strategic priorities such as obesity and mental health.</i></p> <p>(b) Does the plan consider the impact on and synergies with other local priorities that link to the wider determinants of health?</p> <p><i>This would include:</i> Sustainability Growth and regeneration Planning for large scale developments Business Transport Localism and community engagement</p>	<p>(a) Does the plan demonstrate evidence of engagement with stakeholders internal to the organisation?</p> <p><i>Within the LA, this could include planning, transport, schools teams etc. Stakeholders in local government will vary depending on local structures but will include district councils, upper-tier authorities, unitary authorities and combined authorities.</i></p> <p>(b) Is there evidence of the plan linking to the Health & Well Being Strategy?</p> <p>(c) Is there evidence of engagement with stakeholders external to the organisation?</p> <p><i>Examples of organisations that could be engaged include:</i></p> <ul style="list-style-type: none"> Universities Schools Local health partners: hospitals; CCGs; STPs; primary care Community groups and Third Sector Organisations Industry Local businesses <p>(d) How does the plan engage communities and individuals in driving collective action?</p> <p><i>Examples could include citizen science initiatives, involvement of elected members, community group advocacy.</i></p>	<p>(a) Is there evidence of initiatives to engage public and professionals to stimulate action? For example:</p> <ul style="list-style-type: none"> Campaigns such as the National Clean Air Day; Walk to School Inclusion in school curricula Text & press alerts regarding pollution levels Awareness raising <p>(b) Are these informed by evidence including behaviour change science?</p>
3. Evaluation	Is there a process outlined for evaluation?			



NICE Guidelines

- **Air pollution: outdoor air quality and health**
- Focus on the cost-effectiveness of local interventions which aim to reduce exposure to transport related air pollution. The recommendations are related to:
 1. Planning
 2. Clean air zones
 3. Reducing emissions from public sector transport services and vehicle fleets
 4. Smooth driving and speed reduction
 5. Cycle routes
 6. Awareness raising



Air Quality – Public Health Interventions

- Broad public health perspective
- Costs and benefits to all sectors of society
- Health economic evaluation
- Public health utility
- Mechanisms to impact
- Scalability/generalisability



Summary

- Air pollution is single largest environmental risk factor for public health
- Health effects occur throughout the human lifecourse
- Most health gains have been achieved through effective legislation
- Air quality interventions have complex public health implications – positive and negative consequences
- Policy actions may align with multiple domains of the ‘doughnut model’

