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The publisher’s URL is:
http://eprints.uwe.ac.uk/34420/

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(no note)

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The University of the West of England, Bristol
Are We Really Serious About Managing Air Quality?

What does our experience tell us we are good and bad at, and what should we do about it?
Structure of Presentation

• This presentation considers the continuing challenge of managing local air quality in the UK and the factors that act as barriers to progress.

• It critiques the progress in meeting the air pollution challenge and comments on the weakness of the governmental and societal response to the national public health challenge.

• It takes as its focus concentrations of air pollution in municipalities in the UK.

• It considers the mismatch between national emission reductions and concentrations measured at the local scale.

• In doing so this paper acknowledges the significant reduction from power plant, industrial and other point sources but its focus is the failure of local concentrations to respond to management action.
A Starting Perspective

- Air pollution is not an accident.

- It results from the decision others take to shape land use, develop transport infrastructure and to develop the economy.

- Air pollution results from the interactions of these processes and the consequence is an impact on public health.

- Different groups in society have different experiences of pollution.

- In general, the richest in society emit the most pollution and are exposed the least.

- In general, the poorest in society emit the least pollution and are exposed the most.
Fresh Air from the Potteries

http://www.staffspasttrack.org.uk/exhibit/coal/historical%20overview/pottery.htm
Times have changed

- Things have got better.
- We know from past experience that air pollution can be managed when there is a political will to act.
- Air pollution is a societal choice – we could reduce concentrations if we choose to do so.
- The perspective of air pollution will differ when considered at the national scale and the local scale.
- Air pollution is differentially imposed upon different groups in society.

The Air Quality Strategy, 2000

- The Air Quality Strategy, 2000 recognised that

“Clean air is an essential ingredient of a good quality of life. People have the right to expect that the air they breathe will not harm them”.
How do we Know the State of the Air?

- By measuring and modelling air quality
- Automatic Urban and Rural Network (AURN)
  - 161 stations measuring CO, NOx, NO$_2$, SO$_2$, O$_3$, PM10, PM2.5.
  - Data from the AURN are available on Defra’s online UK Air Information Resource, UK-AIR at http://uk-air.defra.gov.uk/
- Numerous passive monitoring sites across UK space mostly for NO$_2$
- Sophisticated air pollution modelling infrastructure to forecast future air quality
- Sophisticated and reliable emissions inventory for major pollutants with very good spatial resolution.
- Reliable emission factors
- The evidence base for the annual assessment of compliance is based on a combination of information from the UK national monitoring networks and the results of modelling assessments.
Measuring and Modelling Air Quality

• UK national modelling consists of two parts:
  • Background concentrations – on a 1x1km resolution.
  • Roadside concentrations – concentrations at the roadside of urban major road links throughout the UK (motorways and major A-roads).
• There are approximately 10,000 urban major road links.

  • Source https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf
Poor Air Quality

- Current regulatory concern is with PM and NO$_2$.
- Poor air quality will exacerbate the impact of pre-existing health conditions, such as respiratory and cardio-vascular illnesses. The elderly, the young and the already ill are most at risk.
- NO$_2$ also associated with adverse effects on human health.
- It is thought that there is an overlap between the health impacts associated with ambient concentrations of PM and with NO$_2$.
- Perhaps as much as 33% of the effects associated with the two pollutants overlap.
The Long Term Solution

• Land Use Planning
• Transport Infrastructure Planning
• The problem is that the beneficial impacts arising from these planning processes is long term whilst the problems of air pollution are immediate and near term.
• There is a disconnect in time between the resource inputs and the benefits.

• See Longhurst et al (1996) Atmospheric Environment. 30 (23) 3975-3985
Policy, Targets and Actions

• Aim to reduce concentrations below regulatory compliance values.
• At the local scale policy intentions and implementation actions seek to identify the largest contributors and to manage their impact on local air quality.
• The challenge of managing local hot spots and national averages.
• Local concentrations are stubbornly resistant to change particularly in areas of public exposure.
Catastrophe drives action.

- Catastrophe creates a political willingness to act
- Good policy intentions often fall foul of vested interests in the policy development process.
- Intended policy action and actual implementation often differ quite significantly.

Environment Act, 1995

- Late 1980s and early 1990s - a growing public health concern related to childhood asthma and an association with traffic emissions.
- The foundations for what promised to be a sustained and concerted attempt to manage air pollution and to reduce it below levels considered to be a risk to public health.

Public Health Challenge of Air Pollution

• Today the political support for the radical actions required to manage down the sources of air pollution contributing to today’s local NO$_2$ and PM concentrations appears absent.

• Policy proposals and interventions proposed today are failing to recognise the scale and intensity of the public health challenge created by air pollution.
It’s Not for the Want of Legislation

• We have had plenty in the UK.
• In the 61 years since the 1956 Clean Air Act we have many, many acts that directly or indirectly relate to air pollution.
• Perhaps not always as effective and hard hitting as we might want
• Often the intent has been watered down by special interest lobbying
• Always at risk from the anti-regulation red tape cutter
• Often the enforcement has been under resourced, weak or ineffectual
Managing UK Air Quality

- Three regimes – mostly disconnected although seeking similar outcomes in terms of managing air quality
- International law – the UNECE Convention on LRTAP - UK and EU are parties
- European legislation on emissions and concentrations – applies to the whole of the UK
- Local Air Quality Management – a devolved responsibility for governments in the UK who set policy and technical guidance for implementation by local authorities.
- Specifics differ across the UK space dependent upon the requirements of devolved administrations in Scotland, Wales, Northern Ireland as well as the Mayor of London and Secretary of State for Defra.
- See Longhurst et al (2009) *Atmospheric Environment* 43 (1) 64-78
Regulation and Enforcement

• To conceive and execute environmental protection responsibilities National and Local Authorities require an effective regulatory framework and a well trained and efficient enforcement capability.

• Both must be present to deliver effective environmental protection.
National Legislation

• Road Traffic Regulation Act 1984
• Environmental Protection Act 1990
• Clean Air Act 1993
• Environment Act 1995
• Transport Act 2000
• The Air Quality (England) Regulations 2000
• The National Emission Ceilings Regulations 2002
• The Large Combustion Plants (National Emission Reduction Plan) Regulations 2007
• The Environmental Permitting (England and Wales) Regulations 2010
• The Air Quality Standards Regulations 2010

From https://www.ukela.org/
Accessed 3/12/17
European Legislation

- National Emission Ceilings Directive 2001/81/EC
- The Council Directive on Ambient Air Quality and Cleaner Air for Europe 2008/50/EC
- The Industrial Emissions Directive 2010/75/EU
- From [https://www.ukela.org/](https://www.ukela.org/) Accessed 3/12/17
- These will continue to apply until the UK leaves the EU in 2019. The position thereafter is subject to the decisions made by the UK government.
The Policy and Regulatory Context Today

- The 1997 National Air Quality Strategy legislated by the 1995 Environment Act, set out to provide a consistent UK approach to air quality management, committed to ensuring access for all citizens to outdoor air without significant health risk.

- The Strategy identified national measures to tackle larger-scale issues such as vehicle fuel quality, engine technology standards and emissions from combustion processes.

- Local air quality management became the remit of Local Governments recognising the importance of subsidiarity, and the need for proportionate, collaborative action that takes account of the local context.

The Policy and Regulatory Context Today

- Since 1997, relevant European Air Quality Directives have been consolidated as the European Ambient Air Quality Directive 2008/50/EC and three revisions of the UK National Air Quality Strategy have been published.
- The Air Quality Strategy, 2000 recognised that “Clean air is an essential ingredient of a good quality of life. People have the right to expect that the air they breathe will not harm them”.
- The most recent Air Quality Strategy for England, Scotland, Wales and Northern Ireland was published in 2007 whilst the last update to the UK Air Quality Regulations was published in 2010.
- It is time for a new Strategy.
The UK Air Quality Strategy

- The Strategy has established objectives for eight key air pollutants, based on the best available medical and scientific understanding of their effects on health, as well as taking into account relevant developments in Europe and the World Health Organisation.

- These Air Quality Objectives are at least as stringent as the limit values of the relevant EU Directives.

- [https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf](https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf)
- Accessed 3/12/17
The Policy and Regulatory Context Today

• Clearly these policy and regulatory positions require updating but until recently there appeared little appetite in government to do so.

• Despite some process-reporting streamlining and modifications of AQO timescales, values and/or exceedence limits, LAQM’s two-stage effects-based approach of air quality assessment in the context of public exposure followed, where necessary, by an AQMA declaration and development of an action plan, has remained largely unchanged since its inception.

European Directive Reporting

Annual Air Quality Reporting

- Sulphur dioxide ($\text{SO}_2$)
- Nitrogen oxides (NOx) comprising NO and $\text{NO}_2$
- PM10 and PM2.5 particles
- Benzene
- 1,3-Butadiene
- Carbon Monoxide (CO)
- Metallic Pollutants
- Polycyclic aromatic hydrocarbons (PAH)
- Ozone (O3)
For the purposes of air quality monitoring and assessment of compliance with the Air Quality Directives, the UK is divided into 43 zones.

The UK met the limit value for hourly mean nitrogen dioxide (NO₂) in all but two zones.

Six zones were compliant with the limit value for annual mean NO₂. The remaining 37 exceeded this limit value.

All zones met both the target values for ozone; the target value based on the maximum daily eight-hour mean, and the target value based on the AOT40 statistic.

https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf

Accessed 3/12/17
European Directives

- All zones except one exceeded the long-term objective for ozone, set for the protection of human health.
- Five zones exceeded the long-term objective for ozone, set for the protection of vegetation.
- All zones met the limit value for daily mean concentration of PM10 particulate matter.
- All zones met the limit value for annual mean concentration of PM10 particulate matter.
- All zones met the target value for annual mean concentration of PM2.5 particulate matter, the 2015 Stage 1 limit value and the 2020 Stage 2 limit value.
- All zones met the EU limit values for sulphur dioxide, carbon monoxide, lead and benzene.

Source: [https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf](https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf)
Accessed 3/12/17
Diagnosis but Not Solutions

• We have had plenty of guidance but has it been effective in delivering cleaner air?
• Undoubtedly it has helped us to identify where poor air quality exists but has it led to cleaner air?
Local Air Quality Management

- Local Authorities must carry out regular Review and Assessments of air quality and take action to improve air quality when the objectives set out in regulation cannot be met by the specified dates.
- Local Authorities in England, Scotland, Wales and Northern Ireland have completed five rounds of review and assessment against the Strategy’s objectives.
- The objectives are prescribed in the Air Quality (England) Regulations 2000, Air Quality (Scotland) Regulations 2000, Air Quality (Wales) Regulations 2000 and Air Quality (Northern Ireland) Regulations 2003, together with subsequent amendments.
- A sixth round of Review and Assessment began in 2015.
Air Quality Management Area

- An AQMA is a spatially designated area where public exposure is present and one or more air quality objectives are exceeded.

- The extent is defined by the local authority acting within the guidance framework prepared by Defra or relevant Devolved Administrations.

- An action plan is then prepared which is intended to improve air quality within the AQMA
The Increasing Evidence of Policy Failure

- 1995 Environment Act and UK Air Quality Strategy set domestic annual mean AQ Objective for NO$_2$ of 40$\mu$g/m$^3$ **to be achieved by 2005**
- It was expected that there would be “a handful of AQMAs in large cities and metropolitan areas’’
- By 2004 over one hundred local authorities had one or more AQMA declarations for NO$_2$ at the start of the year. The 2005 deadline was not going to be met.

- Longhurst et al (2009) *Atmospheric Environment* 43 (1) 64-78
The Solutions do not Match the Problem

- By 2008: 225 LAs (52%) had AQMAs (≈500 AQMAs in total)
- 2016: 259 /389 LAs with AQMAs (716 AQMAs in total)
- By July 2017 278/391 LAs with AQMAs (736 AQMAs in total)
- These are not ‘localised hotspots’ they are local manifestations of a national problem
- A problem that is strongly resistant to the current policy prescriptions for management. Concentrations are stubbornly refusing to comply with the policy intentions.
### UK AQMAs and Action Plans July 2017

<table>
<thead>
<tr>
<th>Region</th>
<th>Total LAs</th>
<th>LAs with AQMAs</th>
<th>AQMAs for NO2</th>
<th>AQMAs for PM10</th>
<th>AQMAs for SO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>England (outside London)</td>
<td>293</td>
<td>209</td>
<td>508</td>
<td>44</td>
<td>6</td>
</tr>
<tr>
<td>London</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>29</td>
<td>0</td>
</tr>
<tr>
<td>Scotland</td>
<td>32</td>
<td>15</td>
<td>27</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>Wales</td>
<td>22</td>
<td>11</td>
<td>39</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>11</td>
<td>10</td>
<td>20</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>391</strong></td>
<td><strong>278</strong></td>
<td><strong>627</strong></td>
<td><strong>101</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

Source: Air Pollution in the UK 2016. Defra
https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2016_issue_2.pdf
AQMAs

• In summary
• 278 Local Authorities – 71% of those in the UK – have one or more AQMAs.
• Some AQMAs are for more than one pollutant
• Many Local Authorities have more than one AQMA.
• The Air Quality Objective for NO$_2$ should have been met in 2005!
Air Quality Management Areas

- Most Air Quality Management Areas in the UK are in urban areas and have been declared because of traffic emissions of nitrogen dioxide or PM10.
- Road transport is the main source in 96% of the AQMAs declared for NO₂.
- 2% of NO₂ AQMAs result from road transport mixed with either domestic or industrial sources, with the remaining 2% made up of non-traffic and unspecified sources.
- An AQMA declaration requires a local authority to develop an Action Plan to improve air quality.
- The requirement is to prepare a plan not to improve air quality!

Source https://uk-air.defra.gov.uk/aqma/ Accessed 3/12/17

See also Longhurst et al (2009) Atmospheric Environment 43 (1) 64-78
Bristol AQMA


Source
Failure of Local Air Quality Action Plans

- Very hard to identify clear cases where AQAPs have been effective and improved air quality to the extent that an AQMA has been revoked
- Little political priority within Local Authorities
- Keeping traffic flowing a bigger priority!
- Even if taken seriously by LA, actions are within the context of national policies designed to facilitate ever larger traffic flows
- Implementation under resourced
- Capacity and capability to act not always present.

Typical measures in Action Plans

MEASURES
1. Smarter choices
2. Sustainable travel guides
3. Car sharing and car clubs
4. Travel plans
5. Promotion of modal shift
6. Speed reduction
7. Retrofitting/scrappage
8. Buses
9. Freight
10. Taxis
11. Development planning
12. Urban traffic management
13. Vehicle parking
14. Low Emission Zones
15. Raising awareness - education

COMMENTS
1. Many of these measures require voluntary action as the local Authority does not have the legal power to implement these measures.
2. Where legal powers exist there is often reticence to engage the full power for fear of an adverse public reaction.
3. Some of the measures are long term.
4. Some of the measures require a larger spatial scale of implementation to be effective in the target area.
Enforcement Action

- Unsurprisingly enforcement action has dropped dramatically in local authorities as budget cuts lead to staff cuts and capacity and capability to act is reduced.
- Enforcement is the necessary adjunct to the regulatory powers at a local authority’s disposal.
- Enforcement is a visible sign of intent and a means of changing cultures.
Failure to Act on the Lessons

• Despite evidence of widespread non-compliance across the UK the 2007 Air Quality Strategy failed to provide the step change in action required to get back on track

• Key initiatives were
  o Incentivising the early uptake of new Euro-standards
  o Increased uptake of low emission vehicles
  o Reducing emissions from ships

• No major revisions to LAQM regime proposed. Business as usual.

• Einstein reminded us that doing the same thing over and over again and expecting different results is insanity.
Governance of Air Quality

• Poorly targeted solutions and disconnected spheres of governance.
• Poor history of cross-department working across government departments - Defra, DfT, DCLG and Health
• Public Health outcomes poorly integrated
• Separation of review and assessment and action plan functions in many local authorities.
• LAQM good at diagnosis but poor at curing the causes of air pollution problems.
• Substantial and sustained cuts in budgets in local and national government since 2010 reducing the capacity to innovate and respond to emerging problems.
The inexorable rise of diesel

Licensed cars by propulsion type, GB 1994 - 2014

DfT Vehicle Licensing Statistics Q4 2014
Comparison of NOx emissions for different car Euro standards, by emission limit and real-world performance (g/km)

European Environment Agency (2016) Explaining road transport emissions – A non-technical guide
Deaths, Costs and Legal Action
WHO

• WHO reports that in 2012 3.7 million deaths were attributable to ambient air pollution.

• This finding more than doubles previous estimates and confirms that air pollution is now the “world’s largest single environmental health risk”.

Growing Evidence of the Health Impacts

- Public Health England - “poor air quality is the largest environmental risk to public health in the UK.”
- World Health Organization (WHO) - older people, children, people with pre-existing lung and heart conditions, and people on lower incomes most at risk
- WHO concludes that long-term exposure to air pollution reduces life expectancy by increasing deaths from lung, heart and circulatory conditions.
- Evidence from the Royal College of Physicians and others of possible links with a range of adverse health effects including diabetes, cognitive decline and dementia, and effects on the unborn child.

- Royal College of Physicians ‘Every breath we take. The lifelong impact of air pollution’ (2016). https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution
- All accessed 3/12/17
Air Pollution as a Cause of Death

- In the UK some 29000 deaths per year are associated with exposure to fine particles, less than 2.5mm in diameter (PM2.5). This is about 6% of total deaths.
- In cities PM2.5 primarily comes from cars, lorries and buses but they are also produced by the burning of wood, heating oil or coal for domestic or industrial purposes.
- In Europe, the WHO estimates about 500,000 people die prematurely as a result of air pollution every year.
- The EEA estimate air pollution caused over 450000 premature deaths in the EU in 2016.
COMEAP estimated that the effects of NO$_2$ on mortality are equivalent to 23,500 deaths annually in the UK although this number is now under review.

Many of the sources of NOx (NO$_2$ and NO) are also sources of particulate matter (PM).

The combined impact of these two pollutants maybe as much as 40000 early deaths per year and represents a significant public health challenge.

The response to this burden is inadequate to say the least.


Note: COMEAP are reviewing the evidence for the effect of NO$_2$ and the overlap between NO$_2$ and PM
RCP/RCPH Report (Feb 2016)

- Focus on health impacts of continuous exposure to chronic air pollution over a lifetime, with specific reference to:
  - Pregnancy, children and adults
  - Indoor and outdoor exposure
  - The influence of local, regional and national policy relating to pollution control measures
  - Examining the influences of climate change
  - Socio-economic impacts of air pollution.

- Source: [https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution](https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution)
- Accessed 3/12/17
Costs in Context

• WHO estimates that the cost to European economies of disease and death associated with air pollution is of the order of US$ 1.6 trillion a year.

• For comparison
  the total UK national debt is about US$ 2.33 trillion
  the total Greek national debt is US$ 405 billion.

• WHO study. Costs corresponds to the amount societies are willing to pay to avoid these deaths and diseases with necessary interventions.

Economic Costs

• The European Commission estimated that total health-related external costs in 2010 were in the range of EUR 330–940 billion, including direct economic damages of EUR 15 billion from lost work days, EUR 4 billion from healthcare costs, EUR 3 billion from crop yield loss and EUR 1 billion from damage to buildings.


• For the 2012 year Defra estimates that poor air quality had a total economic cost in the UK of some £2.7 billion through its impact on productivity.

EU non-compliance not LAQM failure catalyses change.

• Failure of the UK properly to respond to the EU requirements has catalysed public opinion and led to vocal campaigns for change.
• National enforcement actions was ultimately mandated by the High Court!
• Interestingly, the wide spread exceedance of the UK’s own air quality objectives has not resulted in a similar campaign.
Air Quality Plan for Nitrogen Dioxide (NO2) in UK (2017)

• The NO2 Air Quality Plan
The NO2 Air Quality Plan

- In July 2017, the Government launched ‘The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations’ and announced £255m for local councils named in the plan as having persistent exceedances to accelerate their air quality plans.
- This is in addition to the £2.7bn already committed for tackling poor air quality, bringing total investment to £3bn.

- The new Plan adds a further 23 authorities to the 6 mandated authorities identified in the earlier 2015 Plan.
- These 29 authorities must take additional actions to bring air quality within legal limits in the quickest possible time.
The NO2 Air Quality Plan

• The plan sets out how the UK will achieve compliance with EU limit values for NO$_2$ in the shortest possible time.
• To accelerate action, local areas have been asked to produce initial plans within eight months and final plans by the end of next year.
• Local authorities will also be able to bid for money from a new Clean Air Fund to support improvements which avoid the need for restrictions on polluting vehicles.
• This could include upgrading bus fleets, support for concessionary travel and more sustainable modes of transport such as cycling or infrastructure changes.
• The plan confirms the end of the sale of new conventional petrol and diesel cars and vans by 2040.
• Compliance with the Directive is forecast to be achieved in all areas outside London by 2021, and in London by 2026 through the measures outlined in the plan.
• Clean Air Zones
The Clean Air Zone (CAZ)

- The CAZ is a sibling of the smokeless zone or the AQMA. A spatial response to the problem.
- The Government’s initial intentions were quite limited and will not, address the contribution of private cars.
- The Plan did not offer any new financial resources to implement the CAZ nor did it appear to be backed up by substantially new regulatory powers.
- Few of the measures outlined in the Plan can be described as novel and indeed most of the measures are already available to local authorities as part of their tool kit for air quality action planning.
Defra’s Air Quality Plan

• In summary, the Air Quality Plan suggests that progress towards compliance could be more rapid than previously projected and that all UK zones could be compliant by 2026.

• However the basis of the Air Quality Plan’s conclusion that NO\textsubscript{2} concentrations will be brought within EU limits by 2021 (2026 in London) is much more optimistic than the projections made previously.

• The basis of the projections appears to be a combination of model selection, input assumption and changes to vehicle emissions principally associated with the introduction of the new Real Driving Emissions (RDE) standard.
High Court Action

• The Government’s 2015 plan for tackling the UK’s air pollution crisis was judged illegal at the High Court in November 2016.
• The defeat required ministers to reduce the concentration of nitrogen dioxide in the “shortest possible time”.
• Legal NGO Client Earth argued that current plans ignore many measures that could help achieve this, placing too much weight on costs.
• The High Court agreed finding that ministers knew that over-optimistic pollution modelling was being used.
• Client Earth have returned to the Courts to challenge the new plan.
Defra’s NO$_2$ Plan 2017

- These plans are not sufficient to address the public health challenge in the shortest time possible.
- The Plan simply does not go far enough to address the complexity and depth of air quality problems confronting many localities in the UK.
- Much more direct action is required to confront behaviours and vested interests that retard progress towards cleaner air for all.
- These issues led the activist lawyers ClientEarth yet again to challenge the Government in the High Court.
In 2016 the Committee published a damning report on air quality policy in the UK.

In this report the influential Committee stated that deaths from air pollution represent a public health emergency for the UK.

Defra’s plans for CAZs to cut NO$_2$ were criticised as giving local authorities insufficient control over implementation.

The Committee noted that there are many more local authorities where EU limits are not met and for whom powers should be given to create a CAZ where local circumstances require one.
Draft Clean Air Zone Framework

• In October 2016 Defra published its draft framework for the design, implementation and operation of Clean Air Zones.

• Clean Air Zones bring together immediate action to improve air quality with
  o support for cities to grow while delivering sustained reductions in pollution and a
  o transition to a low emission economy. Where there are the most persistent
  o pollution problems this is supported by access restrictions to encourage only the
  o Cleanest vehicles to operate in the city.
  o Alongside the specific requirement for the 6 non-compliant zones the framework envisages and enables local authorities to take voluntary measures to introduce a CAZ

The Air Quality Problem

• In the two decades since the Environment Act 1995 and EU Framework Directive 96/62/EC there has been lots of activity especially at the local authority level but very little success in achieving cleaner air!

• New thinking is required
A Clean Air Commission?

- The Clean Air Alliance has called for a major new initiative to tackle the health problems resulting from air pollution.
- In a letter to Andrea Leadsom, the then Secretary of State for the Environment, Food and Rural Affairs, Dan Byles, the Chairman of the Clean Air Alliance, said,
  
  “We are today (18 July 2016) proposing to you and your colleagues the establishment of a high level Clean Air Commission to create a new momentum for the urgently needed action to tackle air pollution in our cities and countryside and to clean up the air we all breathe.

- A new Clean Air Act is required.

House of Commons Select Committees
Joint Enquiry

• MPs from four select committees have combined forces to launch an unprecedented joint inquiry on air quality to scrutinise cross-government plans to tackle urban pollution hotspots.

• Inquiry: Improving air quality
• Environmental Audit Committee
• Environment Food and Rural Affairs Committee
• Health Committee
• Transport Committee

Reframing the problem

• The problem requires a recognition of the technical and social causes of air pollution.
• Address the barriers to change which restrict the individual and groups in society from
• Address the social and structural inequalities related to both the cause of air pollution and its impacts
• Enable widespread emission reductions - not just hotspot management. A new Clean Air Act is needed.

Conclusions

- Air quality in the UK continues to pose a public health risk to much of the population.
- Efforts to control emissions and to manage and reduce exposure continue but are often under resourced, lack sufficient political support and public understanding and engagement is often absent.
- Ultimately air pollution is a choice society makes through its collective and individual behaviours and social practices.
- However the consequences of those behaviours and choices will play out in many different ways with those who are least able to exercise choice having air pollution concentrations imposed upon them.
- History shows that concerted, collective and sustained action can lead to dramatic improvements in air quality.
- Society can choose to minimise the effects of air pollution.
- New ways of thinking and acting are required.
- ClairCity the Horizon 2020 project will help the process of change.
A New Way of Looking at Air Pollution
ClairCity

http://www.claircity.eu/
This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 689289.
CLAiR-City

• CLAiR-City project, the largest citizen-led air-quality project ever in Europe.
• Considering the who and the why not just the what and where.

• From top down to bottom up decision making.

• What do citizens want and what are they prepared to do to get it?
ClairCity objectives

ClairCity will integrate and quantify citizens’ behaviour and activities to enrich city, national and EU level policy-making, resulting in improved air quality, reduced carbon emissions, improved public health outcomes and greater citizen awareness.
ClairCity consortium

1. Trinomics B.V. (Project Coordinator - Netherlands)
2. University of the West of England, Bristol (Technical Lead - UK)
3. PBL Netherlands Environmental Assessment Agency (NL)
4. Statistics Netherlands CBS (Netherlands)
5. Technical University of Denmark (Denmark)
6. Norwegian Institute for Air Research (Norway)
7. REC Regional Environmental Centre (Hungary)
8. TECHNE Consulting (Italy)
9. Transport & Mobility Leuven (Belgium)
10. University of Aveiro (Portugal)
11. Municipality of Amsterdam (Netherlands)
12. Bristol City Council (UK)
13. Intermunicipal Community of Aveiro Region (Portugal)
14. Liguria Region (Italy)
15. Municipality of Ljubljana (Slovenia)
16. Sosnowiec City Council (Poland)
Selection of pilot cities

Different air quality and carbon sources, emissions and concentrations; social, economic and health challenges; benchmarks in their management capacity and capability; spatial scales and population demographics; regionality across Europe; and engaged with various networks for dissemination purposes.
ClairCity project overview

Work package 1: Project management

Work package 2: Impact & innovation

Work package 3: Behaviours

Work package 4: Citizen & stakeholder engagement

Work package 5: Quantification

Work package 6: Policy & governance

Work package 7: Scenario coordination & city policy package
ClairCity engagement tools
Professor James Longhurst

University of the West of England, Bristol, BS16 1QY UK

Email James.Longhurst@uwe.ac.uk

Public profile http://people.uwe.ac.uk/Pages/person.aspx?accountname=CAMPUS\j-longhurst