Clean Air
IN LONDON

‘One Atmosphere’

Lessons from 10 years of campaigning

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Getting ‘Clean Air in Cities’

1. Getting started
2. Background and context
3. Situation now
4. Social media
5. Getting liveable cities
6. UNEP’s GEO-6
7. Next steps
8. Opportunity

1. Getting started

- Starting ‘Clean Air in London’
- Mission
- Three principles
- Building media and public understanding
- Milestones and successes

Starting ‘Clean Air in London’

- Campaigning locally. Entity and governance
- Mission. Objectives: health, London-wide. Highly political but non-party. ‘Wholesale’ not ‘retail’
- Principles: London Matrix, Principle and Circles
- Strategy? Focus on air quality in London and ‘up’
- How? Content and communications
- It’s fun! Engage others. Share knowledge. Sustainable

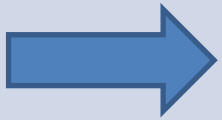
Mission

"To achieve urgently and sustainably <u>full</u> compliance with World Health Organisation guidelines for air quality throughout London and elsewhere"

The London Matrix – ‘One Atmosphere’

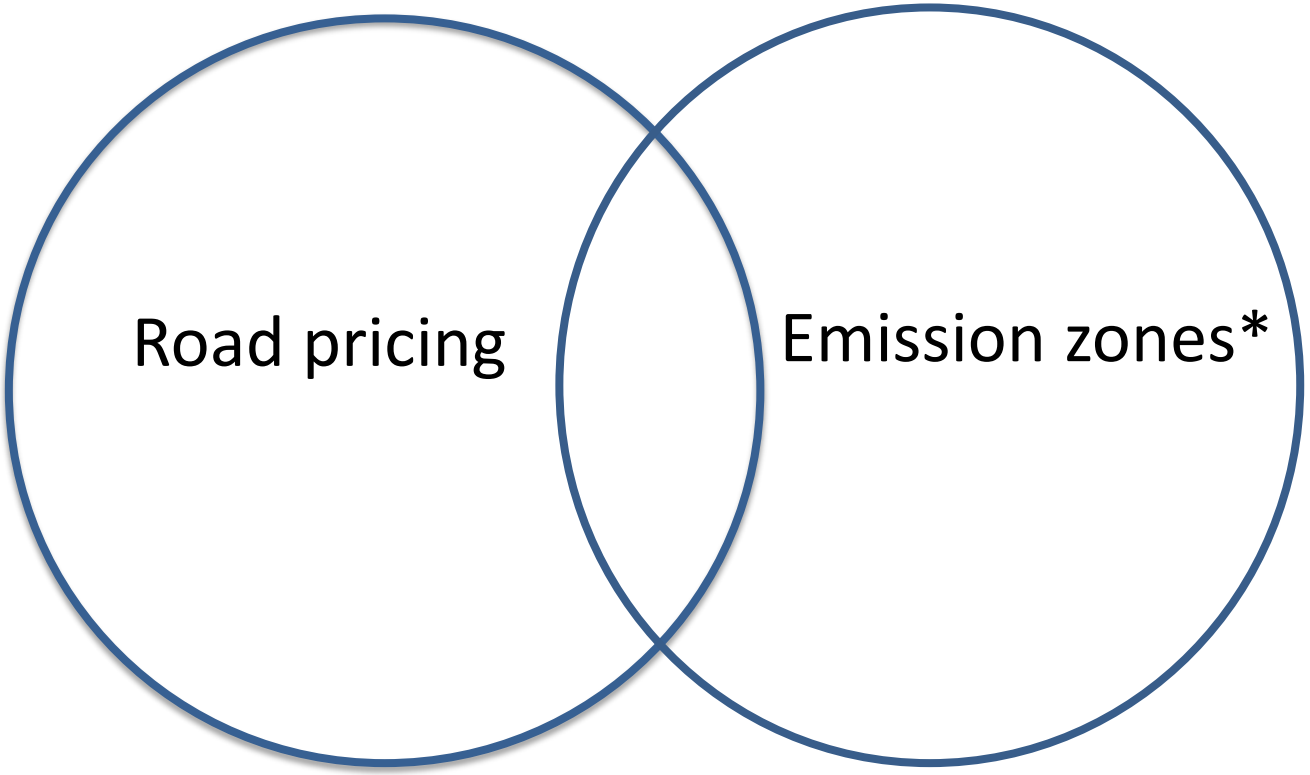
	Air pollution	Climate change
London		
Rest of world		

The London Matrix – ‘One Atmosphere’

	Air pollution	Climate change
London	**Success**	
Rest of world		

The London Circles

Transport measures address congestion and/or emissions



* ‘Clean Air Zones’

The London Principle – 'One Atmosphere'

We must think in terms of 'One Atmosphere'. All obligations to reduce air pollution must be met. Any trade-offs between climate change and air quality should be made in an explicit and transparent way e.g. through the application of the 'London Principle'. This states that a 1% disbenefit in climate change terms (e.g. increased CO_2 emissions) should be accepted when there is an associated benefit of 10% in air quality terms (e.g. reduced emissions of particulate matter or oxides of nitrogen) (and vice versa)

Media coverage: Oxford Street

Examples of media coverage

ABC Al Jazeera Ars Technica BBC Bloomberg Boston Globe Business Green CBS Channel 4 China Central Television China Radio International CNN DW Eco dalle Citta El Pais ENDS Euronews Evening Standard Express Financial Times France 24 Gibraltar Chronicle Guardian The Hill Independent ITV LBC London Live Mail Metro Mirror New York Times Observer Oriental Morning Post Radio France International Reuters RT Saturday Paper Le Soir Sky Southern Weekly Sun Svenska Dagbladet Sydney Morning Herald Telegraph Time Time Out Times Vice Voice of Russia Yellow Advertiser ZDF

Building public understanding

Easier to warn the general public than…

Survey of 100 Members of Parliament

…politicians

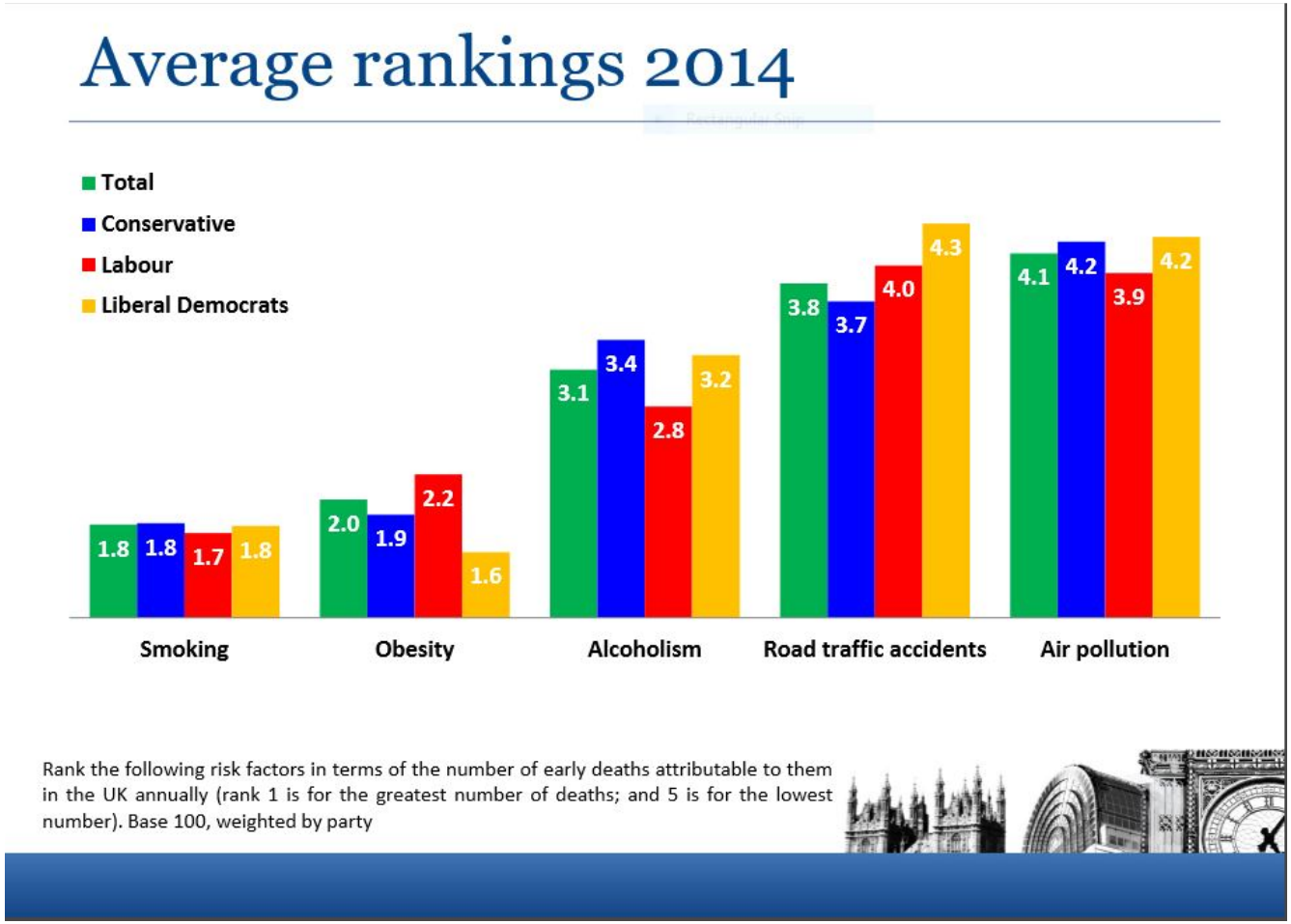
Rank the following risk factors in terms of the number of early deaths attributable to them in the UK annually:

1. Smoking
2. Obesity
3. Alcoholism
4. Road traffic deaths
5. Air pollution

Rank 1 is for the greatest number of deaths and 5 is for the lowest number

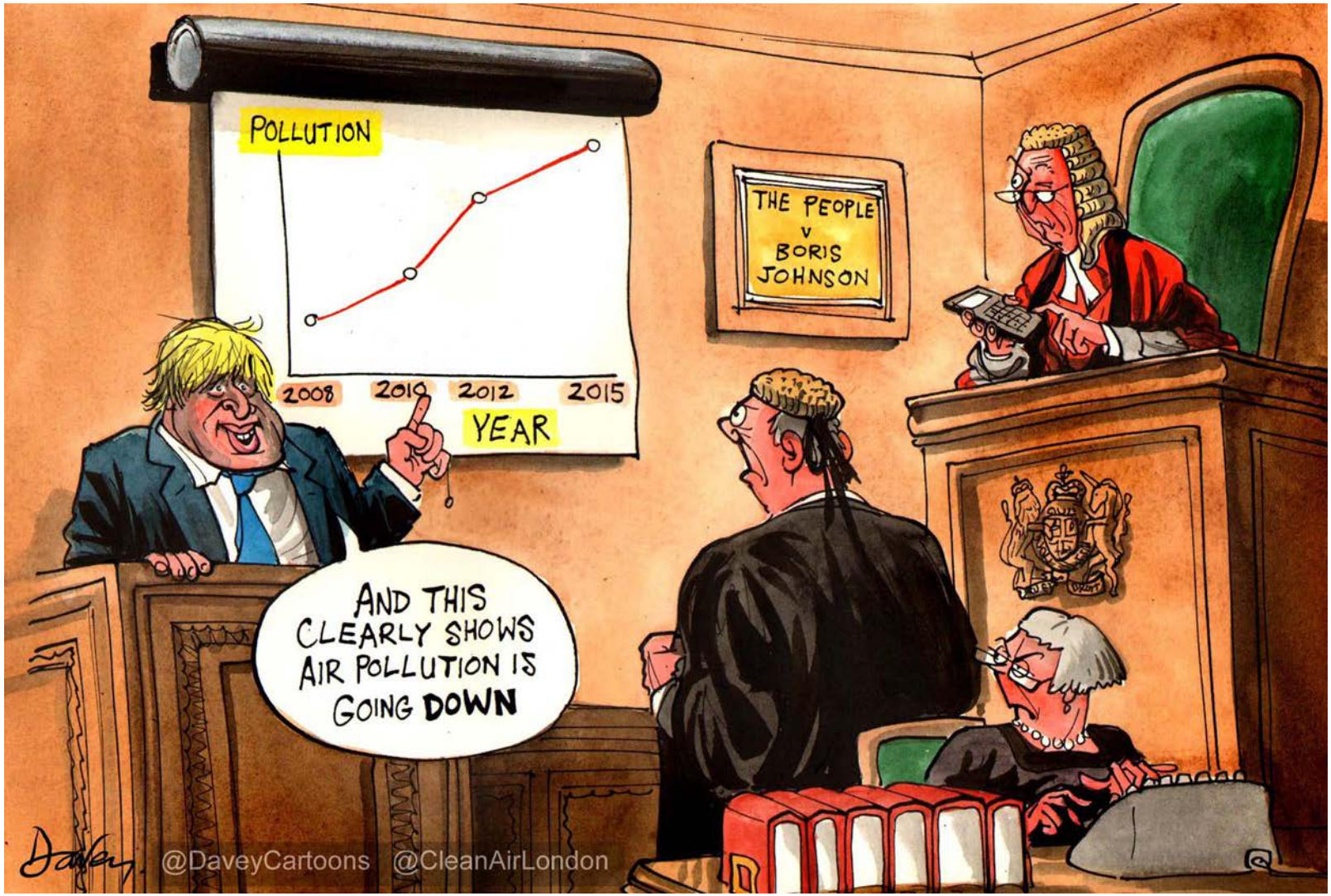
DODs Parliamentary survey

…politicians



Milestones and successes

- **2006-2008** Getting started. Media coverage. New Air Quality Directive for Europe
- **2008-2010** Health investigations. Solutions proposed
- **2010-2012** Olympics and legal pressure. European Commission infraction twice on $PM_{10.}$ Many others begin campaigning. Parliamentary inquiries
- **2012-2015** Breakout. European Commission's 'Clean Air Policy Package' in December 2013 and keeping it in early 2015. Role of social media, cartoons etc. NO_2 infraction
- Three sponsors: Camfil (indoor air quality), New West End Company (Oxford Street businesses) and Licensed Taxi Drivers Association (distributing taxi receipts)
- **2015-2020** 'One Atmosphere'. UNEP role


POLLUTION
2008
2010
2012
2015
YEAR
THE PEOPLE
v
BORIS
JOHNSON
AND THIS CLEARLY SHOWS AIR POLLUTION IS GOING DOWN
@DaveyCartoons @CleanAirLondon

2. Background and context

- Jargon
- Historical perspective
- ‘Pollution Suppressor’
- Lessons

Jargon

- Particles ($PM_{2.5}$ and PM_{10}) and gases (NO_2)
- Short (e.g. PM_{10}) and long-term (e.g. $PM_{2.5}$) health effects. Mortality and morbidity. Overlapping effects
- Emissions and concentrations. Exposures, impacts and outcomes. Visible and invisible
- All affected. Many outcomes. Deaths mainly cardiovascular. 4,300 $PM_{2.5}$. 5,900 NO_2 in London versus 8,500 from smoking. Second biggest public health risk
- Local (NO_2), regional ($PM_{2.5}$) and transboundary pollution e.g. tropospheric ozone (O_3)

Historical perspective

- Great Smog 1952 and Clean Air Act 1956
- Scientific focus on short-term respiratory effects despite evidence of cardiovascular deaths in ‘time series’ studies
- ‘Cohort studies’ identified long-term effects of $PM_{2.5}$
- Myopic focus in UK since 1990 on CO_2 and fuel efficiency
- Many roads in Central London tend (today) to have the highest NO_2 concentrations in the world. Blame diesel
- Europe Union’s ‘Clean Air Policy Package’ in 2013
- 68th World Health Assembly. First debate on air pollution!
- Back where we thought we were 60 years ago

Myopic focus on CO_2

A very senior civil servant, now retired, who worked in the [Department of Environment in the late 1990s] and has asked not to be named, said that cost-benefit studies of a switch to diesel were done, but climate change was "the new kid on the block" and long-term projections of comparative technologies were not perfect. "I recall all the discussions had the health issue as a significant factor," he says. "We did not sleepwalk into this. ***To be totally reductionist, you are talking about killing people today rather than saving lives tomorrow.*** *Occasionally, we had to say we were living in a different political world and everyone had to swallow hard."*

John Vidal, Environment Editor, in The Guardian, 20 June 2015

Myopic focus on CO_2

"The Chairman, summing up the discussion, concluded that the points could be put to Ministers in a general way. It was important, however, not to allow the question of fiscal incentives to encourage the purchase of cars meeting lower emission standards than the mandatory ones to obscure the long-term need to encourage people to use fuel efficient [diesel] vehicles."

Department of Transport

Minute of meeting on 28 September 1990

London: 15 March 2012

Pollution Suppressor – 26 March 2012

London: 19 February 2013

Lessons

- ‘One Atmosphere’: air pollution and greenhouse gases. Policy disasters promoting diesel and biomass burning
- Government departments are not/never ‘joined-up’. Must maintain and build scientific and official expertise
- Short and long-term effects e.g. offsetting. NOx/O_3. SOx cooling effects from shipping
- Solutions: Governance. Political leadership, lifestyle changes and technology. Not just ‘Best available technical solutions’. Offsetting is never the answer. Green walls cost 40x exhaust abatement per kg of pollutant removed
- Indoor air quality: ventilation, air conditioning and filtration
- Communicate health impacts. Warn, protect and reduce
- Expect new health and natural environment impacts

3. Situation now

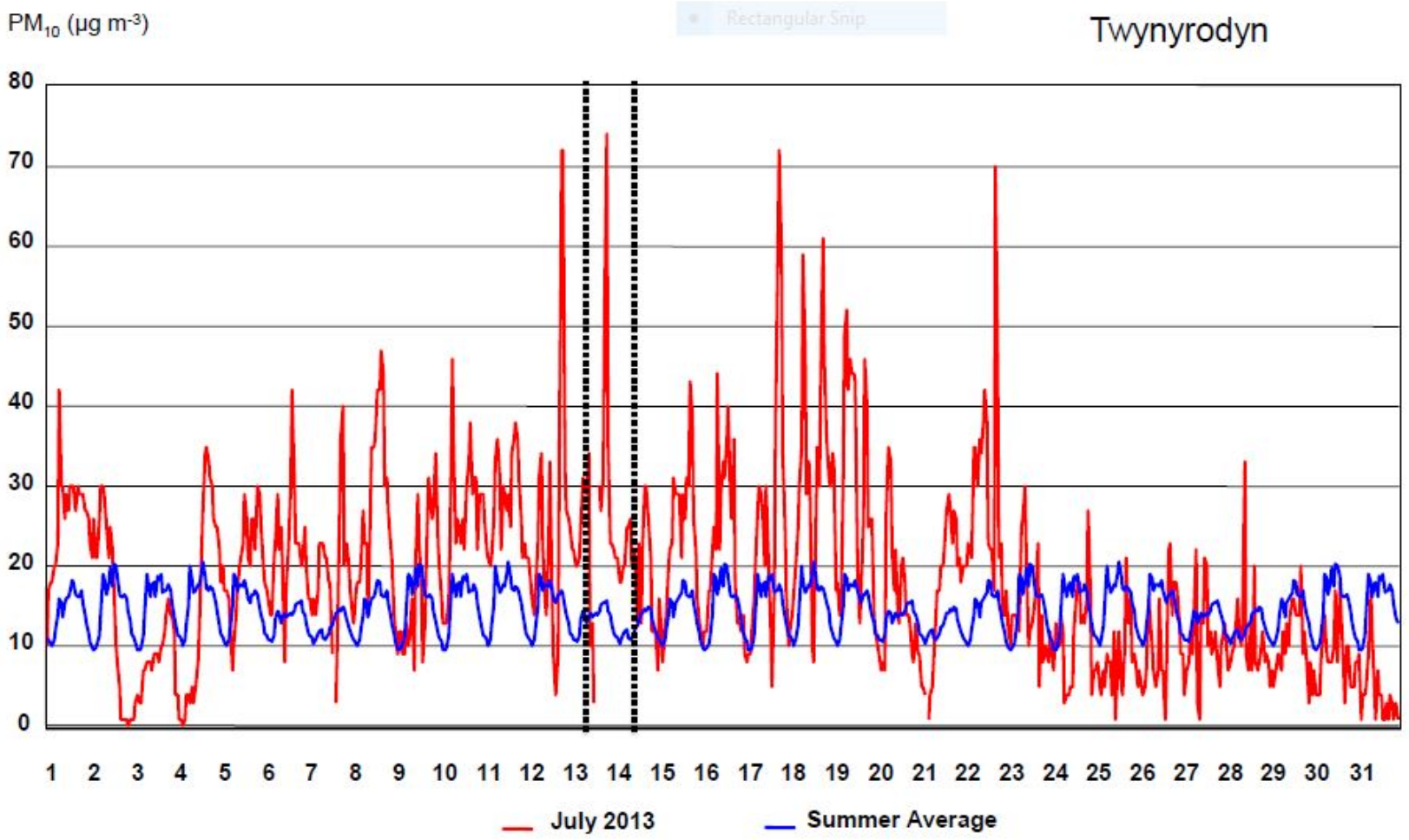
- Health
- Legal
- Sources
- Solutions

Health

- Excellent REVIHAAP and HRAPIE reports by WHO
- Statistical versus actual impacts
- $PM_{2.5}$. Health effects detectable well below 10 $\mu g/m^3$
- NO_2 – London study based on WHO's HRAPIE
- Traffic-related air pollution (TRAP)
- Cognitive effects on children. Jordi Sunyer et al
- Inequalities
- Emerging problems: $PM_{2.5}$! NO_2, TRAP, ozone and nanoparticles. More pollutants and more outcomes

World Health Organisation declares…

Tragic deaths during SAS selection in 2013



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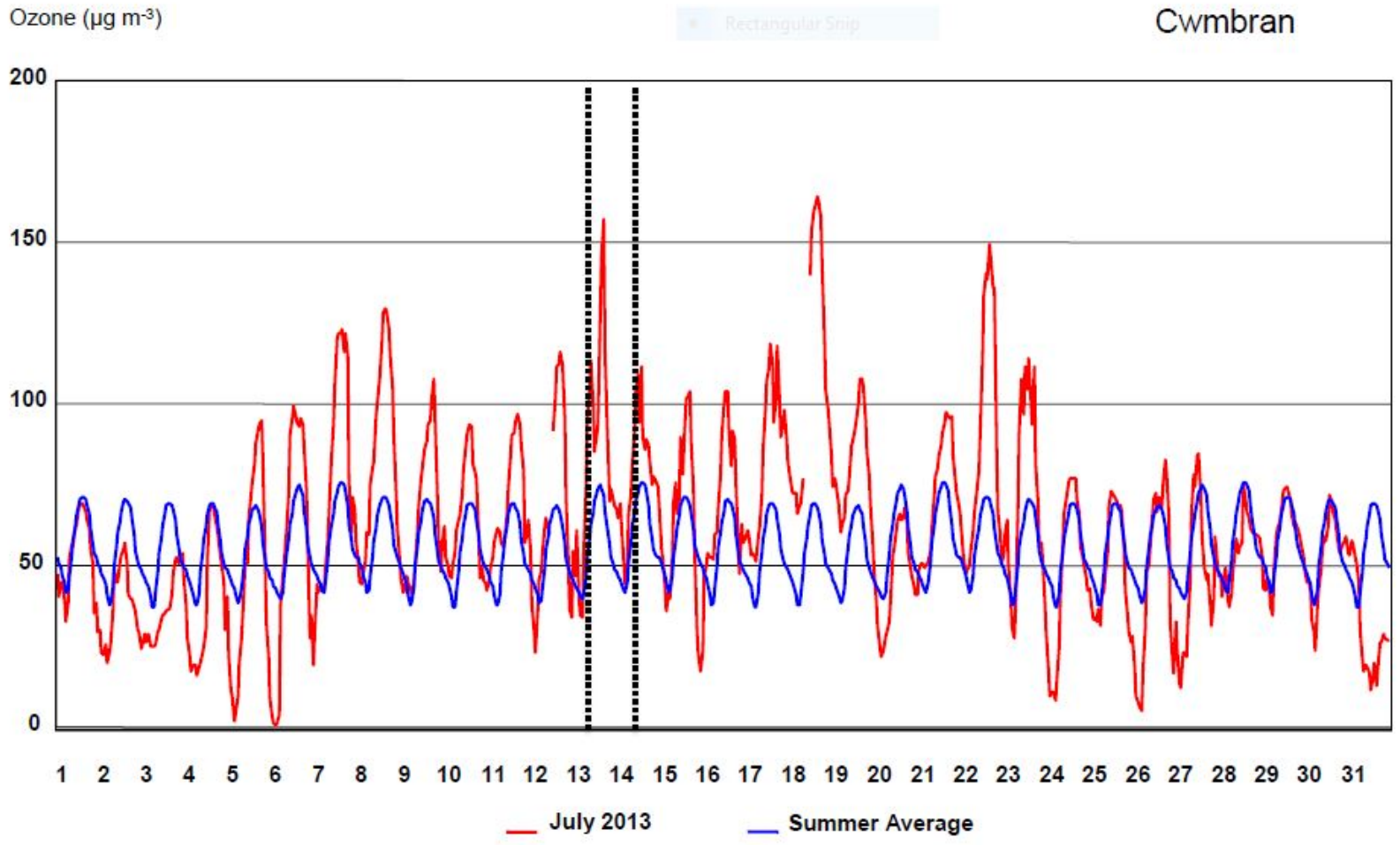


Legal – London and Europe

- Governance e.g. Freedom of Information
- Tiers
  - European infraction
  - National courts. ClientEarth case has implications across Europe. Government's NO_2 plans 'pass the buck'
  - Planning decisions. Authoritative QC opinion
- Need new Clean Air Act to address modern fuels and technologies
- New laws in Europe e.g. National Emissions Ceilings Directive to target sources. NRMM

ClientEarth win

Supreme Court in April 2015

Sources – London and Europe

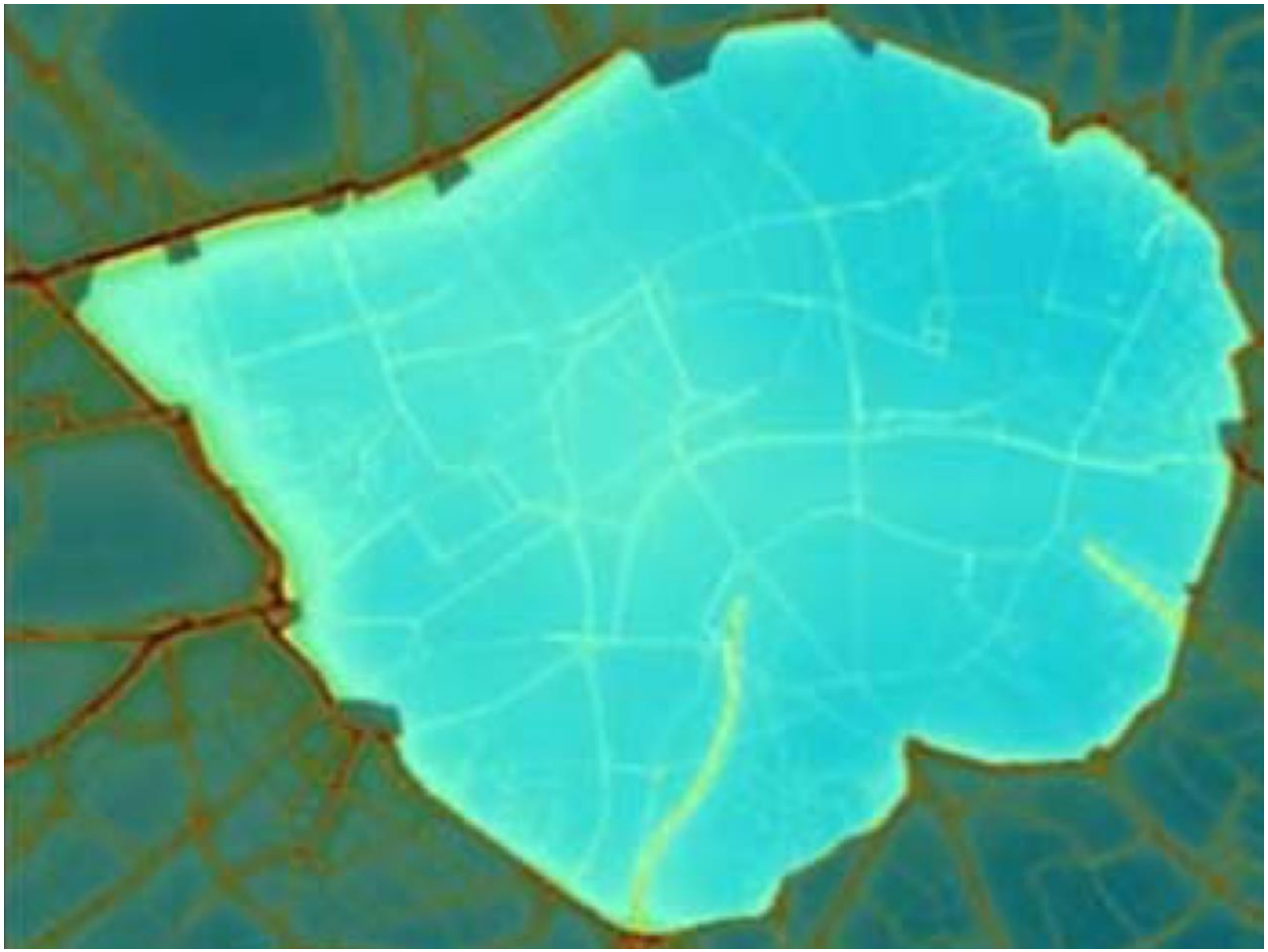
- Be sure to identify them. Many pollutants
- PM, SO_2, NOx, NH_3, VOCs and ground level O_3
- City (24% $PM_{2.5}$ but 82% NO_2) versus background
- Importance of agriculture, construction, industry, power generation and shipping
- Gas heating and cooking. Illegal wood burning
- Road transport in cities. #DieselGate. New Euro 6 standards failing. Tyre and brake wear
- Air pollution episodes e.g. Sahara dust?

Solutions – General principles

- Build public understanding. Warn people and give them advice on protecting themselves (adaptation) and reducing pollution for themselves and others (mitigation)
- Political leadership. Need action in cities and outside them
- Hierarchy of solutions simultaneously and in parallel
  - Governance e.g. access to information and justice
  - Lifestyle changes e.g. active travel
  - Ban or close the most polluting activities e.g. no biomass burning within the gas grid
  - Short-term technology solutions e.g. retrofit
  - Long-term technology solutions e.g. electric, renewables
- What policies? Everything including the kitchen sink
- China knows how to do it e.g. Olympics 2008. 2015. 2022?

Zero tailpipe emissions by 2020

Source: Transport for London



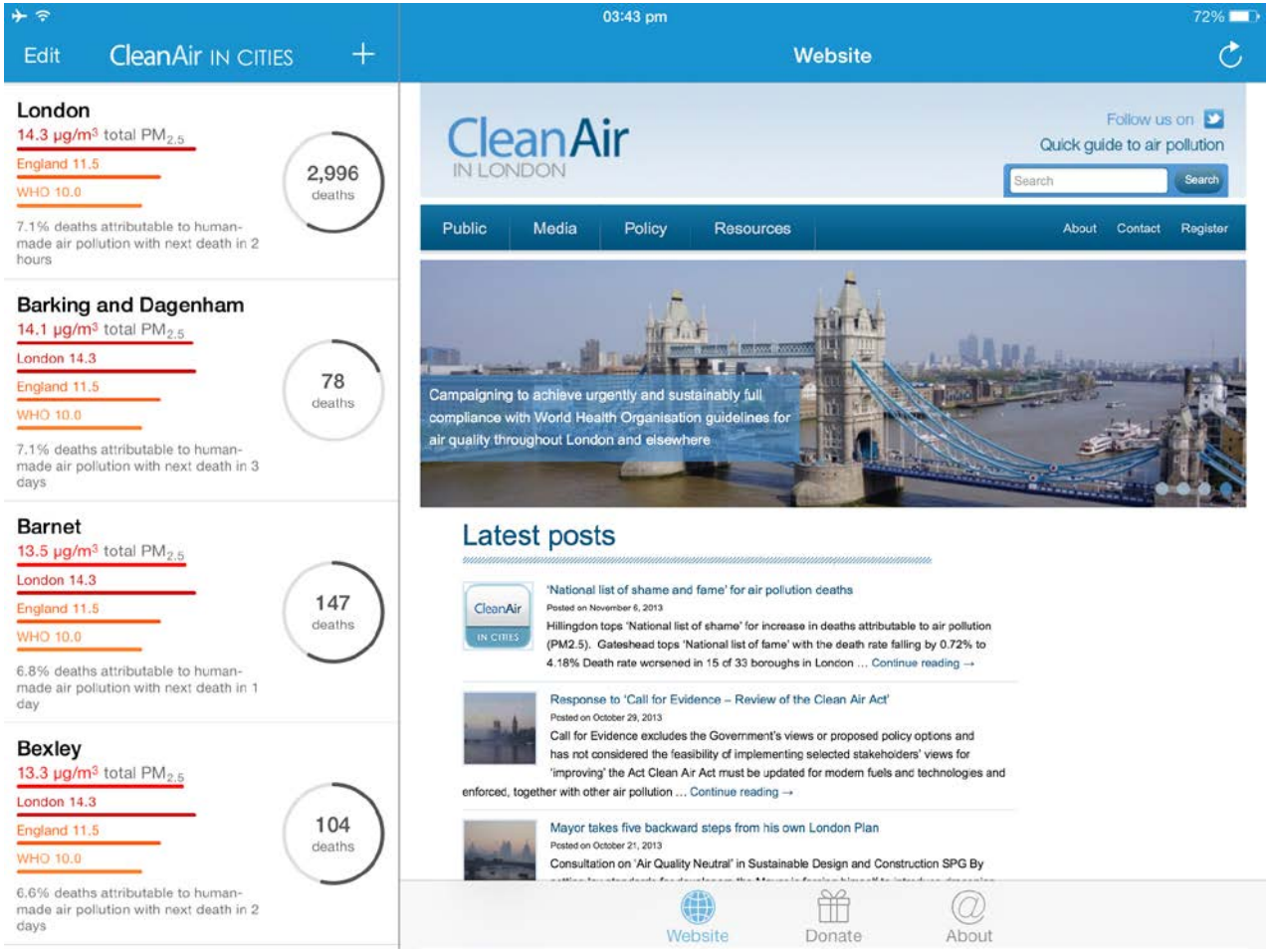
4. Social media

- Twitter and Facebook
- Apps
- Cost effectiveness
- Big ‘hits’

Social media and technology

- Website. Twitter versus Facebook. Analytics
- 24,000 Twitter followers – global audience. 35,000 Facebook fans – London audience. Cost effective and powerful. No-one knows how far or fast a tweet or post will spread. Transparent. Viral
- Twitter: images, links, hashtags and usernames. Top tips: mutual respect and account security. Lists. First EMEA Twitter success story was about us
- Apps. Viral. Repetition. Momentum
- Reaching anyone, anywhere. Everyone, everywhere

‘Birkett Index’ – ‘Clean Air in Cities’ app



Big ‘hits’

- 1,100 schools within 150 metres of busy roads
- 60th anniversary of the ‘Great Smog’
- Diesel emissions on 41,700 road links in London
- Top 50 most-polluted. Buckingham Palace!
- Legal wins. Supreme Court. Infraction action
- Ranking of top 10 death ‘outcomes’ in London
- Air pollution episodes e.g. ‘Sahara Dust’

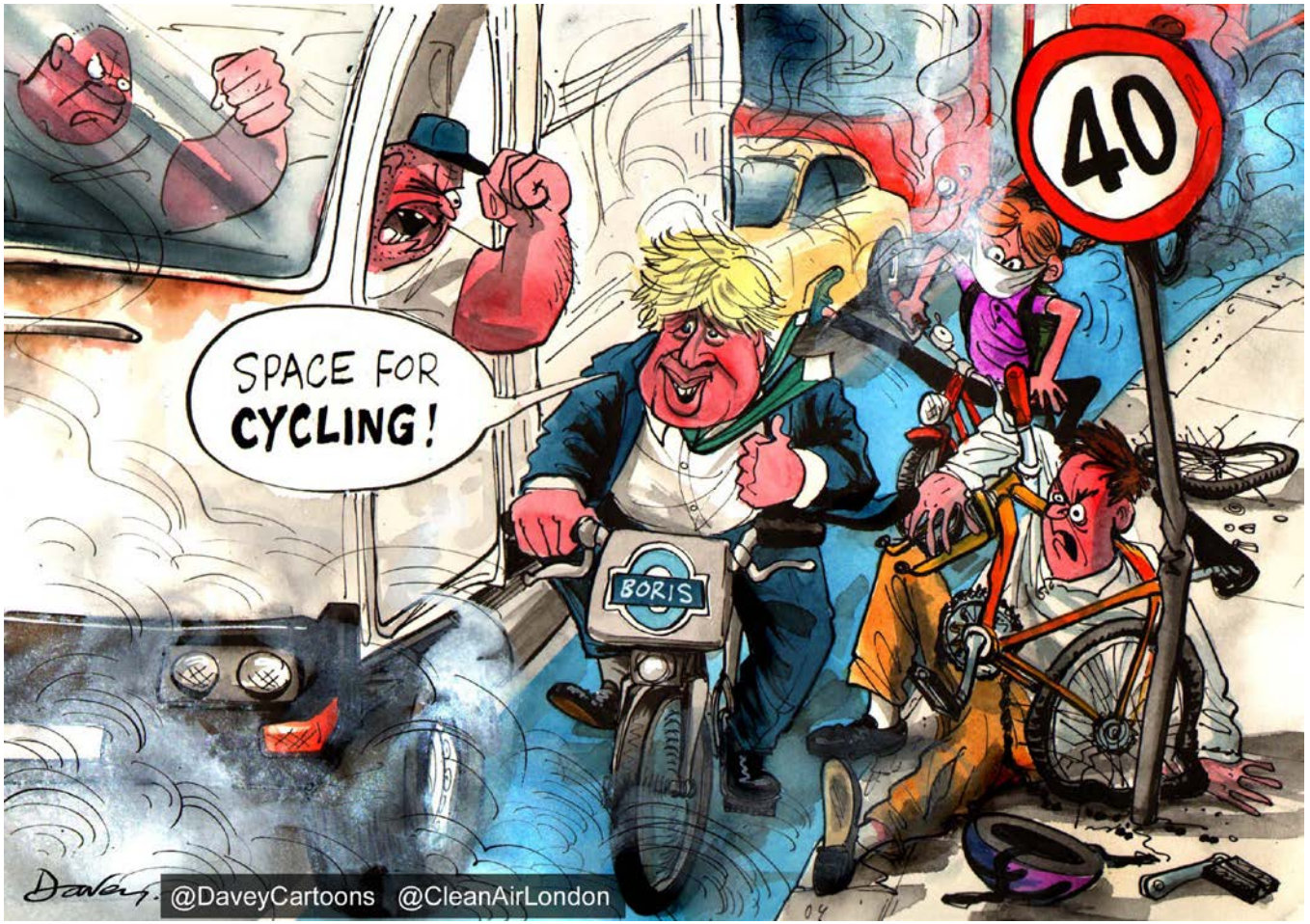
5. Getting liveable cities

- London and Europe
- ‘Ultra low’ emission zone in 2020
- Australia and New Zealand

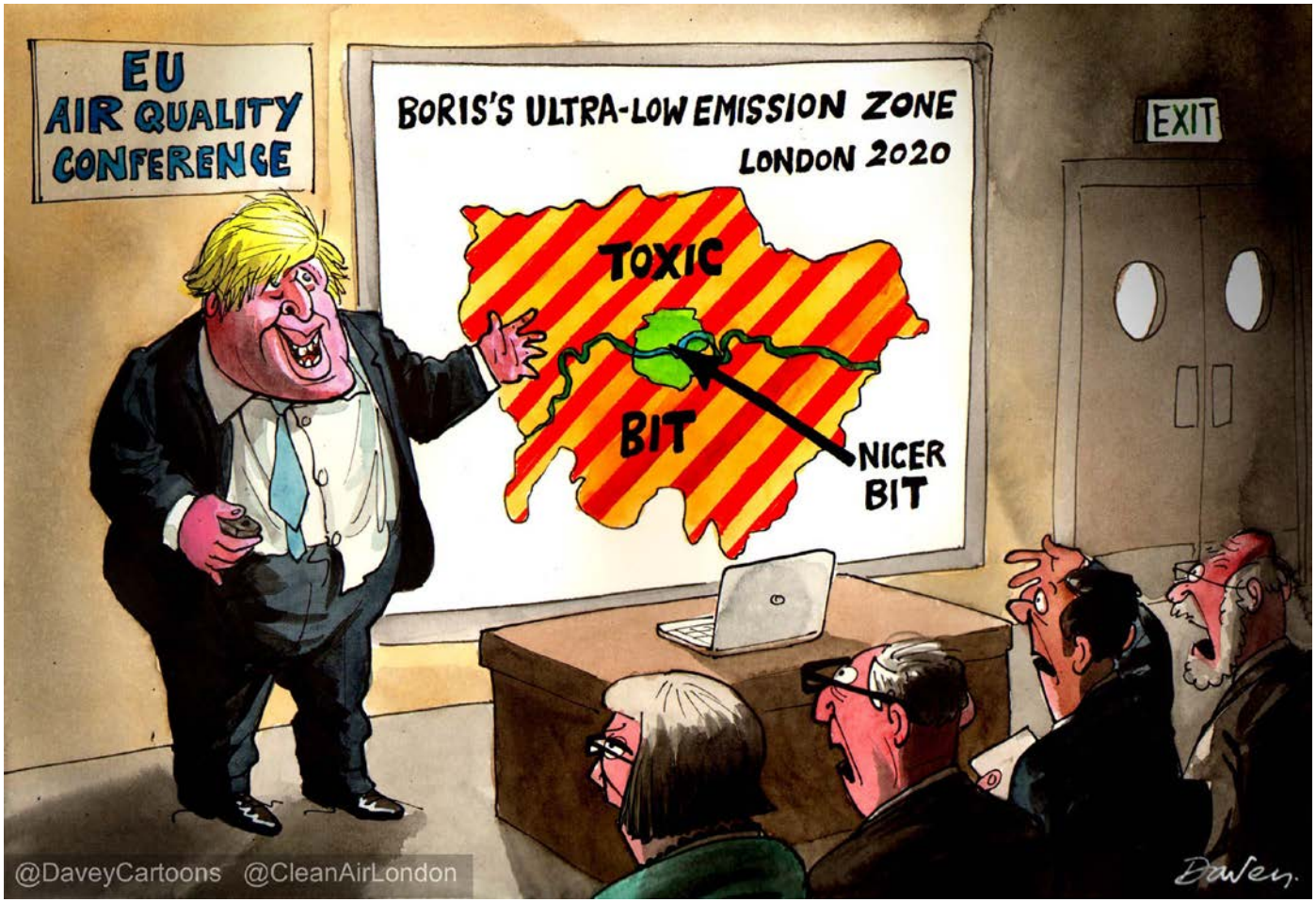
London – Solutions?

- Build public understanding of air pollution. Smog warnings. Public health agencies must protect people
- Act on illegal wood burning: 5-10% annual mean PM_{10}
- Think ‘One Atmosphere’ on local energy generation e.g. stop standby diesel generators feeding into the ‘grid’
- Ban diesel, diesel, diesel as we banned coal
- Bus and taxi emissions (scrapping 25ft turning circle)
- Use ‘geo-fencing’ with care. Restrict road building
- Promote positive measures e.g. active travel and car-free centres. Restrict polluting activities e.g. ultra low emission zones and/or emissions based road charging

Encourage active travel



Ultra-low emission zone in 2020



Europe – Solutions?

- $PM_{2.5}$: Replace coal and wood burning with solar, hydro, tidal and wind. Energy saving
- Action on agriculture, rail and shipping e.g. NOx Emission Control Areas for shipping
- Local energy generation. Reduce emissions from CHP, medium-sized combustion plant, incinerators etc.
- NO_2: road transport and diesel. Retrofit ST. LT solutions
- Ban diesel, diesel, diesel. Non-road mobile machinery
- Promote positive measures e.g. active travel and car-free centres. Restrict polluting activities e.g. ultra low emission zones and emissions based road charging

Australia and New Zealand - Challenges

- Lack of public understanding of air pollution
- Traffic related air pollution. Road and tunnel building
- Smoke from domestic wood heaters
- Smoke from planned burns, bushfires. Dust storms
- Coal mining operations. Diesel trains. Dust from stockpiles
- Coal fired power stations e.g. sulphur emissions become $PM_{2.5}$ particles
- Shipping. Historic focus on point sources e.g. industry
- Governance e.g. planning. Inequalities. Capacity issues

Australia and New Zealand - Solutions?

- Recognise we need another clean air revolution. Maintain and build research and agency expertise. It's the bedrock!
- Build public understanding i.e. it's not just about air pollution episodes. Governance. Monitoring. Inequalities
- Need ambitious National Clean Air Agreement in Australia. Address long-term exposure to $PM_{2.5}$ in New Zealand
- Shipping low emission zones. Onshore power. Ferries
- Power generation. Move from coal to renewables
- Address smoke from wood heaters and other burning
- Lifestyle changes: more active travel i.e. walking and cycling
- Car-free city centres. Fewer and cleaner vehicles

6. UNEP's GEO-6

- Sixth Global Environment Outlook
- Key issues
- Regional air pollution issues
- Next steps towards 2018

Sixth Global Environment Outlook

HLG – Nairobi. 26-27 March 2015

GEO-6: Overview and key issues

- State and trends of air, land, water and biota
- Policies
- Outlook
- Regional issues so far. Draft…
- My two headline priorities
  - 'One Atmosphere'. NO_2 mortality. Short and long-term effects e.g. offsetting pollutants and health impacts
  - Policy hierarchy must start with governance and include lifestyle changes and banning or closing the worst polluters before relying on technology
- Emerging concerns. New $PM_{2.5}$ risks. NO_2, nanoparticles, TRAP and ozone

GEO-6: Regional air pollution issues

- Africa: Environmental governance. Data revolution
- Asia: Sustainability. Transboundary issues e.g. air pollution. Environmental governance. Urbanisation e.g. transport
- West Asia: Sustainable cities and air quality linked to transport. Increasing use of social media. Fracking
- Europe: Green economy. Air quality. Climate change. Nanoparticles. Low public awareness (still). Coal
- North America: Nanoparticles. NH_3 emissions increasing (agriculture/fertiliser). Fracking. New metrics for GDP. Innovation in media and engagement tools
- South America: Citizen science. Governance – rights and responsibilities. Fracking

7. Next steps

- Australia and New Zealand
- Internationally
- ‘Clean Air in London’

Australia and New Zealand next steps

- National Clean Air Agreement
  - Binding standards aligned to WHO guidelines (or better) that apply where people 'live and work' and include NO_2 i.e. not 'targets' at urban background sites
  - Robust governance framework including access to environmental information and justice
- New Australian 'climate position' for COP21 that goes well beyond the top of range of ambition 'pre-approved' by the **Abbott** cabinet
- New Zealand needs to keep and tighten its short-term PM_{10} standard i.e. daily mean

International next steps

- European legislation on sources and enforcement of air quality laws
- New Sustainable Development Goals for 2020 and 2030
  - **Goal 3. Ensure healthy lives and promote well-being for all at all ages**
    - 3.8 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination
  - **Goal 11. Make cities inclusive, safe, resilient and sustainable**
    - 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
  - **Goal 12. Ensure sustainable consumption and production patterns**
    - 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil to order to minimize their adverse impacts on human health and the environment
  - **Goal 13. Take urgent action to combat climate change and its impacts**
    - 13.2 Integrate climate change measures into national policies, strategies and planning
    - 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- COP21 in Paris
- World Health Assembly in May 2016. WHO's Clean Air plan
- UNEP's GEO-6 in 2016, 2017 and 2018

‘Under the Dome’

Part 7 of 8 "Under The Dome" Documentary on China's Pollution by Chai Jing

Next steps for ‘Clean Air in London’

- Mayoral elections in May 2016. Top three issue with housing and…? ‘Draft’ Clean Air manifesto published
- New Clean Air revolution 60 years after the last. Update Clean Air Act for modern fuels and technologies
- New European legislation and ‘staying in Europe’!
- Vision: save London, save the world. Break the cycle of air pollution by eliminating emissions at source

8. Opportunity

Next five years – ‘One Atmosphere’

- 5 July 2016 is 60th anniversary of first Clean Air Act
- Focus to 2020 and beyond on ‘One Atmosphere’
- Encourage people to think holistically about local air pollution and greenhouse gases
- Show the world how to tackle local air pollution and achieve wider climate and sustainability objectives
- Wonderful opportunity

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