

Briefing paper:

Better policymaking for cross-cutting environmental and social issues

The case of air pollution



Air pollution, its effects and existing policy

Although air quality in the UK no longer involves the Great Smogs of the 1950s when British cities were notorious for their acrid fogs, air pollution remains a major environmental and health hazard. There is substantial scientific evidence on the adverse effects on human health and the environment from various airborne pollutantsⁱ, and growing evidence of negative health impacts from chronic exposure to lower, legally allowable concentrations of pollutantsⁱⁱ.

The latest government consultation on air quality accepts that 29,000 deaths are caused every year by particular matter pollution (PM_{2.5}) and an estimated 23,500 deaths are caused by effects of nitrogen dioxide (NO₂), a harmful gas emitted by diesel vehicles and other sources, known to cause respiratory illnessⁱⁱⁱ. The consultation focuses on how to curb NO₂ since 38^{iv} out of the UK's 43 zones currently do not comply with binding limits on this air pollutant, set out in the EU's Ambient Air Quality Directive^v. This Directive sets limit targets that should have been met by 2010 with the possibility of an extension up to January 2015; however for these 38 zones the UK either did not meet the targets despite asking for an extension or did not ask for an extension in the first place as it knew that it would not be able to comply.

Air quality as a 'Nexus' issue

The UK is not the only country struggling to comply with limits on NO_x and PM. Road traffic is a major source of both NO_x and PM and right across Europe the vehicle fleet has shifted from cleaner burning petrol engines to diesel ones, which offer better fuel economy and were actively promoted in an effort to reduce greenhouse gas emissions and combat climate change. In the process, however, these climate change policies exacerbated problems with local air quality.

Such complex interdependencies are a hallmark of 'nexus' issues involving coupled human-environment systems. In such coupled systems, efforts to improve sustainability in one policy domain can prove counter-productive if they do not consider their effects on other policy domains with which they are inter-connected. Thus the carbon emission reducing shift from petrol to diesel vehicles, developed as part of national climate strategies and promoted through associated tax and transport policies, had far reaching consequences for local air quality and environmental health, which were overseen by different policymakers working across different sectors in a multilevel governance system. Nexus thinking highlights these interdependencies

and promotes more integrated approaches that move beyond sectoral, policy and disciplinary silos.

Responding to the government's draft air quality plans

In 2014, the Supreme Court of Justice ruled that Defra should produce a new national air quality plan that would allow it to meet European legal limits for NO₂ levels in “as short a time as possible”^{vi}. The first draft of the new plans was published by Defra in September 2015 and the consultation process will remain open until 6th of November 2015.

The government's plans include national and regional level measures to improve air quality as well as 38 local plans that set out ‘zone-specific’ strategies. Since 80 per cent^{vii} of NO₂ legal breaches are road transport related, this is a key area for intervention and Defra is proposing the establishment of a national network of Clean Air Zones, restricting access to high polluting vehicles in urban areas. Other proposed measures include reducing traffic, investing in clean and affordable public transport, shifting back from diesel to petrol, banning high polluting diesel vehicles, lowering speed limits, enhancing cycle routes and encouraging behavioural change through enhanced communication and information sharing. These measures are expected to allow all zones to meet NO₂ targets by 2020; however London will not be compliant until 2025.

Key concerns revolve around the degree of responsibility that the plans place on local authorities, with little information on how proposed measures will be financed. Groups such as ClientEarth, Clean Air London and Healthy Air Campaign have also pointed to the need for Defra to work more closely with the Department for Transport, Department for Health, and the Department for Energy and Climate Change to incorporate air quality across multiple policy areas. Clean Air London expressed concerns about the timeframe set out by Defra (which intends to hold another round of consultations in early 2016 and to release the clean air zone network after that), calling it a ‘plan for a plan by others’. Further to this, European air quality limits remain considerably lower than the standards set by the WHO, meaning that even if the government were to meet the Ambient Air quality limits by 2020, severe health risks would remain.

Nexus issues in Parliament: Past Examples of Success

The examples below demonstrate how Nexus thinking has allowed the UK and the US to overcome environmental challenges by cooperating across different sectors and departments.

Climate Change Act:

The Climate Change Act, committing the UK to achieve an 80% reduction in greenhouse gas emissions by 2050 relative to 1990 levels, involved the introduction of the draft Climate Change Bill into Parliament in March 2007, and its subsequent passage as a full Bill from 2007 to its eventual passing as an Act in 2008. The Act, the first of its kind in the world, attracted cross-Party support and outlined an example of how a piece of legislation with significant implications for the environment, economy and society can be successfully introduced into Parliament, through first addressing the multiple concerns and objectives of Whitehall departments (including the Treasury, Business, Transport, Housing and Environment

departments) and then through addressing the different voices in Parliament. The Climate Change Act balances the need to significantly reduce greenhouse gas emissions with the requirement to ensure that adverse impacts on the macro-economy, those in fuel poverty, and business competitiveness are minimised.

Bioenergy Sustainability:

The UK has a target to generate 15% of energy from renewable sources by 2020. Bioenergy could deliver 21% of this target, and has been incentivised by the UK Renewables Obligation (RO) since 2002. Yet bioenergy sits in a hugely complex policy landscape with cross cutting implications for energy security, carbon goals, renewables targets, heat, power, transport, forestry & timber, food & farming, waste, air quality, rural development, and impacts on other biomass users. Concerns about sustainability have risen up the political agenda and sustainability criteria were introduced into the RO in 2011. Yet whether biomass genuinely contributes to carbon reductions has continued to be hotly debated. The Government launched a public consultation in September 2012 stating that it is “essential that we take action to ensure the biomass used in the UK is sustainable, delivers real carbon savings and protects valuable habitats at home and abroad”. Following this enquiry the RO sustainability criteria for solid biomass were updated in April 2014 to include reporting on sustainable forest management and more stringent greenhouse gas emission threshold. The sustainability debate, however, shows no sign of diminishing.

Water Management (US setting):

The 2007 and 2008 reports by UC Davis Watershed Sciences Center on the status of Sacramento-San Joaquin Delta reshaped policy discussions regarding the Delta. These reports helped pioneer the findings of the 2008 Delta Vision Blue Ribbon Task Force and the 2009 state water legislation, sometimes hailed as the largest water policy accomplishment of a decade. The decision-making deadlock on a vital issue often requires a credible scientist to re-define the problem so that it can be productively addressed. The melt-down of California’s CALFED Bay-Delta process provided an opportunity for leading water scientists to re-define the problem in such a way that it could be better understood and more productively discussed. UC Davis scientists actively continued to help shape discussions on Delta water management and flow requirements and developing a new forward-looking book on overall California water policy, which seeks to have a similar long-term effect on improving discussions and understanding of California’s water problems and solutions. The UC Davis reports brought substantial convergence of policy-makers on many aspects of the Delta and California water policy. The involvement of a wide variety of stakeholders in hundreds of discussions and presentations before, during, and after the release of these reports by the UC Davis team was an essential part of their success^{viii}.

ⁱ Particulate matter (PM₁₀; PM_{2.5}), nitrogen oxides (NO; NO₂), ground-level ozone (O₃), and volatile organic compounds (VOCs) are the major concerns in the UK today. Accessible summaries of the evidence-base are available from J. Wentworth (2014) [Ambient Air Quality](#) POSTnote 458, Parliamentary Office of Science & Technology, London; Natural Hazards Partnership (2015) [Air Pollution](#), NHP Science Note.

ⁱⁱ WHO (2013) Review of evidence on health aspects of air pollution. Copenhagen: World Health Organization

ⁱⁱⁱ In a 2010 study a COMEAP had found that long-term exposure to particulate matter pollution (PM_{2.5}) caused the equivalent of 29,000 early deaths across the UK in 2008: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/304641/COMEAP_mortality_effects_of_long_term_exposure.pdf. COMEAP is now looking into the health impacts of NO₂ but preliminary estimates, released as part of the Government's air quality plans consultation, are that it is causing the equivalent of 23,500 early deaths each year across the UK. The final study, expected in December 2015, will update figures for PM_{2.5} and take into account for any overlap with NO₂ but the fact remains that tens of thousands of early deaths are being caused each year from the air that we breathe.

^{iv} For a complete list of the zones and their projected dates of compliance see Department for Environment, Food and Rural Affairs (DEFRA), September 2015, *Draft plans to improve air quality in the UK*, available at https://consult.defra.gov.uk/airquality/draft-aq-plans/supporting_documents/Draft%20plans%20to%20improve%20air%20quality%20in%20the%20UK%20%20Overview%20document%20September%202015%20final%20version%20folder.pdf

^v 2008 Ambient Air Quality Directive (2008/50/EC) sets 'limit values' for the maximum allowable concentrations of these and other pollutants, which enter the atmosphere through a variety of processes both anthropogenic (especially road traffic and fossil fuel combustion for power generation, transport, domestic heating, & industry) and natural (in the UK Saharan dust and sea spray can be significant PM₁₀ sources). Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0050>

^{vi} This came after a legal challenge by Client Earth against the government for not fulfilling such obligations. See: <http://www.clientearth.org/news/latest-news/uk-supreme-court-orders-government-to-take-immediate-action-on-air-pollution-2844> Also see: Client Earth, UK Supreme Court judgement: consequences and next steps, September 2015, p1. <http://documents.clientearth.org/wp-content/uploads/library/2015-09-17-the-uk-supreme-court-ruling-in-the-clientearth-case-consequences-and-next-steps-ce-en.pdf>

^{vii} Department for Environment, Food and Rural Affairs (DEFRA), September 2015, *Draft plans to improve air quality in the UK*, p.12.

^{viii} Background notes:

The MLPA Blue Ribbon Task Force (BRTF) is composed of seven public leaders selected by the secretary of the California Natural Resources Agency for their knowledge, vision, public policy experience, and diversity of professional expertise. The BRTF is responsible for:

- Overseeing a regional project to develop alternative marine protected area (MPA) proposals in California's MLPA South Coast Study Region to present to the California Fish and Game Commission,
- Preparing information and recommendations for coordinating management of MPAs with federal agencies, and
- Providing direction for expenditure of private funds

The BRTF also provides direction in the face of uncertainty, while meeting the objectives of the Marine Life Protection Act (MLPA). The chair of the task force oversees the work of the executive director of the MLPA Initiative, works with the director of the California Department of Fish and Game to convene a stakeholder group, and serves as the principal link between the BRTF and MLPA Initiative staff. BRTF members also serve as liaisons to the regional stakeholder group.

The UC Davis reports were quite independent but got so much attention that they could enter the legislative discussions because of the stakeholders' desire and obtained knowledge through the reports.