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Dear Sean,

**Response to Defra consultation on options to improve air quality management in England
Air quality work at King's College London**

For the last 20 years, scientists at King's have been closely engaged in air quality management providing research evidence, support and advice to national, London and local government along with other organisations such as Public Health England and the Environment Agency (EA). As a university research group we are unique in the UK in spanning the air pollution problem from the source of pollutant emissions, through to the measurement, modelling, assessment of health effects and the supply of information to the public.

Summary

Our response is structured in the form of comments on specific aspects of the consultation followed by answers to the consultation questions.

First we recognise that air quality management in the UK is convoluted. Currently the absolute imperative for the UK government is to meet our EU obligations. Other sectors of government need to comply with different (but not dissimilar) requirements, specifically those under the Environment Act 1995 (EA 1995). The EU requirement is to achieve specific measurable targets, whereas the EA 1995 has a series of duties that need to be complied with, without giving local authorities the specific imperative to actually achieve air quality targets. The Localism Act has further convoluted this state of affairs, with the power for government to impose sanctions on local government in the case of infraction. This suggests that central government may take action, although it has not previously used its powers of direction under the EA1995.

In contrast to air quality management actions at the national and European levels, we see local air quality management (LAQM) as having provided innovative solutions with an important connection to local communities. However, this process needs help through central support to determine what works well, with a set of centrally supported framework that all local authorities (LAs) can adopt. Such a framework would make substantial cost savings in the implementation and reporting of local actions. A central database of local actions could be set up for local authorities to record and report their actions. This would further simplify EU reporting. To improve this Defra needs to consider its role, especially as an enabler.

Greater involvement is needed too from all stakeholders, with new requirements on upper tier authorities and the Highways Agency (HA) to actively assess air quality across the geographic areas that they are responsible for and to pro-actively work on decreasing pollution emissions. The good model provided by the Greater London Authority (which takes a considerable leadership role on this issue) and the London Boroughs should be considered. This model should be adapted to the local government systems outside London by requiring upper tier authorities and the HA, as transport authorities, also to review, assess and actively manage air pollution for the *achievement* of the air

quality improvements. This should form the structure of a new local air quality management regime rather than the current focus on lower tier authorities only.

Other government departments and agencies also have a role in achieving the air quality standards and objectives. As many of these department and agencies are outside the remit of Defra, there is a need for someone to have an overseeing role. With this in mind we suggest that an office of Air Quality Commissioner (AQC) be created. We see this role as independent of government with the power to scrutinise, adjudicate, recommend and direct stakeholders on air quality actions. (Note - this is distinct from that of Air Quality Expert Group, who provide advice on science only). The creation of this office would permit a separation of the two roles currently held by Defra, that for delivery and as overseer.

Finally, air quality management at all levels needs greater ongoing assessment of the effectiveness of actions to ensure that policies and measures remain effectively targeted.

Progress towards attaining air quality limit values, air quality strategy objectives and revocation of air quality management areas

While considerable progress has been made in decreasing concentrations of many pollutants such as CO, benzene and SO₂, very substantial progress is still required to reduce concentrations and public exposure to NO₂, O₃, PM₁₀ and PM_{2.5}. EU Limit Values for NO₂ were set in the late 1990's to be attained by 2010 and, here in 2013, we are still intending (and hoping) to attain them nationally in the 2020's. This failure is mostly due to the failure of vehicle emission reduction programmes for NO₂ at national and EU levels and an over-reliance of the anticipated outcome of these measures. Similarly PM₁₀ Limit Values were set for 2005 and whilst, in the UK, we are on the positive side of attaining these in 2010, this has partially been brought about by a consideration of natural sources rather than large real world reductions in concentration.

Within this context it is unwise to consider revocations of air quality management areas (AQMA's), which are set mainly for PM₁₀ and NO₂, as the main criterion for the success of LAQM. This only makes sense if there is a duty or a target to actually achieve the relevant standard. Currently this is not proposed but is clearly an option. An in depth analysis of all AQMA's would aid this discussion further. For example it is noted that there is an additional need for local authorities to retain their AQMA's under current guidance to ensure that any attainment is borne out over time and to ensure that future air quality does not deteriorate as a result of planning and other development. AQMA's are further discussed in response to Q.12.

The need for evidence-based action plans and feedbacks

In their 2003 report the US Health Effects Institute set out an accountability chain linking regulatory action to consequential emissions reductions, with improvements in ambient air quality, through to exposure / dose reduction with a final end point of human health improvements, see Figure 1. At all stages assessment of effectiveness provides feedbacks to create improved action. Such feedbacks within air quality management within the UK may have allowed a response to be mounted to evidence ten years ago, (Carslaw et al., (2004) for example) concerning primary NO₂ changes and other questions to be addressed concerning trends in PM (Fuller et al., 2006, Harrison et al., 2008). Instead valuable time has been wasted and so health burdens and NO₂ non-compliance have been endured for a longer period with money and effort expended on non-optimal actions.

We accept that not all measures can be assessed through improvements to air quality concentrations; however other metrics can be devised such as traffic reduction, modal shift or increased public awareness. Such feedbacks should be built into action planning and interventions at all levels and through these best practices identified so that a rigorous approach to policy evaluation can be established. This could be a task for the Air Quality Commissioner (as suggested initially above and further described in response to Q.5 below) or as a part of Defra's research programme.

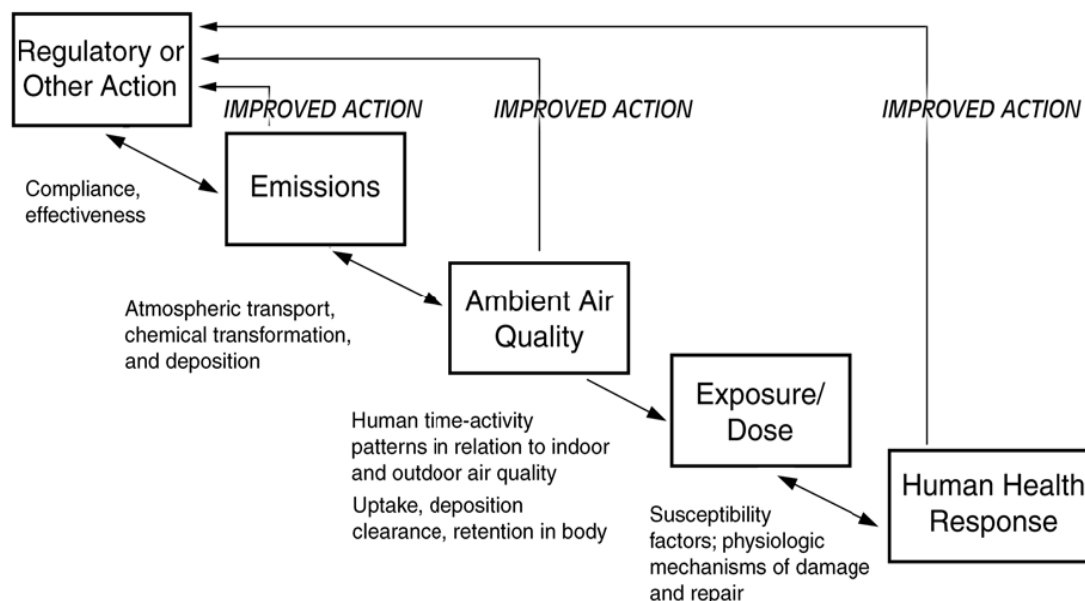


Figure 1 The so-called accountability chain, at several stages, knowledge gained from accountability assessment can provide valuable feedback for improving regulatory or other action. HEI, 2003.

With the LAQM regime having been in place since 1997 it is puzzling why a firm body of evidence based on best practice has not been firmly established and openly available. Such a body of evidence would allow the action planning process to be significantly streamlined leading to reduced cost and more direct action. This evidence cannot be sensibly collectively gathered by individual local authorities but should be established by Defra to provide support for the LAQM process.

Although the current consultation criticises LAQM as being diagnosis driven, this diagnosis cannot be ignored. A focus on the important transport and other levers needs to be evidence based and so supported by robust monitoring of air quality, assessment of emissions and through dispersion modelling. Otherwise schemes to improve air quality e.g. based on clothing, paint, trees, screening, etc that are extremely unlikely to improve air quality except in very exceptional circumstances might predominate. The use of such schemes is also likely to involve high direct cost.

Furthermore the societal cost of ineffective or non-action cannot be ignored.

London and the major cities

Serious air pollution problems exist in our major cities. The Government is right to recognise the set of problems within London but it should also recognise the pro-active way in which the Greater London Authority (GLA), Transport for London and the London Boroughs are working to tackle this issue. The GLA has led nationally on the assessment of the effectiveness of air quality interventions; the London Low Emission Zone (LEZ) and the application of CMA "glue" near dusty sites are examples; and this emphasis will be continued through the Mayor's Air Quality Fund. This model should be adapted to the local government systems outside London by requiring upper tier authorities as transport authorities and the HA to also actively manage air pollution. In London this is "for the *achievement* in Greater London of the air quality standards and objectives prescribed in regulations" (GLA Act 1999, Part IX, article 362(2)(B)); this language should be adapted to other major cities and large unitary authorities.

The role of local assessment and air quality measurement

While it could be argued that the national level assessment reporting is fit for purpose for the EU, where attainment at a zone or agglomeration level is the reporting goal, it lacks the granularity to capture the spatial variations in air pollution and emissions exposure. This has been shown countless times with examples as diverse as air quality management areas (AQMA) in small towns and

villages, issues around waste management sites and industry that reflect the true spatial extent of breaches of air quality strategy objectives outside the main road network and across background locations in large urban areas. Local action based on national assessments runs the risk of actions being based on a misdiagnosis of sources. For example the national assessment of Brighton and Hove shows short distances of NO₂ EU limit value exceedence on main roads, whereas the local authority (LA) assessment reveals the national NO₂ air quality objective is exceeded on a large network of roads. The source apportionment reveals also a diversity of traffic mix related causes in different locations.

Much more needs to be done to improve the quality of local assessments. Too many air pollution monitoring programmes focus on ascertaining if a national air quality objective has been exceeded and not why it has been. More guidance is needed on how to make effective air quality measurements, to move beyond problem identification towards improved diagnosis and the provision of optimal apportionment information to inform actions. Numerous examples of such strategies are available (each with their own strengths and weaknesses) that can be adapted to specific local air pollution questions to ensure that monitoring is carried out cost effectively.

The role of communities and local accountability

Local communities have a vital role to play in decreasing the impacts that air pollution has on the whole of our society and economy. This can be through applying pressure for greater action from stakeholders, to actions to decrease emissions and preventative measures to lessen personal exposure to air pollution.

Members of staff from King's frequently encounter high levels of interest and concern when giving public talks both in London and beyond. Further evidence of high demand for local air pollution information is provided by the LondonAir smartphone applications. Despite no promotional budget, the uptake of this system was such that during Easter week of 2011 we sent 400,000 pollution notifications to phone users and today we continue to have thousands of active users.

For local communities to be engaged in air pollution issues they need local measured data and the outputs from local assessments. Numerous examples can be cited where local information has prompted many business groups, residential groups, cycling organisations and environmental groups to become actively engaged improving the air pollution that they, their workers and customers are exposed to. Without local assessment we are convinced that local pressure to improve air pollution will become unfocused, accountability will be absent and important issues of exposure to local air pollution will drop from local debate and action.

National frameworks to support local action

Based on evidence of effectiveness a framework of air quality actions should be established by Defra for local authorities to adopt. The emphasis on each LA would be on the tailoring of such measures to local circumstances. Examples of this approach overseas include the German programme for low emissions zones (LEZ) where vehicle emissions classifications are nationally agreed and individual local authorities can design their own LEZ according to their own air quality problems. Outside Europe a further example can be found in Australia where the New South Wales Environment Protection Authority (EPA, 2012) has been consulting on nine air quality management measures to tackle wood burning that each individual LA can then adopt.

Response to specific consultation questions:

Q1. What are your views on whether we should consolidate EU and National Air Quality Objectives and how this might best be achieved?

There are clearly major differences relating to legal status and the obligations on the different stakeholders. It is the risk of EU infraction problems, which is rightly the main driver for the UK government. It is currently less so for other tiers of government, although Part 2 of the Localism Act may have an effect in the future. Even this is doubtful however without further changes in law, to specifically to further apportion air quality responsibility onto stakeholders. Our suggestion relating to the *achievement* of air quality improvement above is a guide to the action needed to ensure that air quality law is toughened sufficiently.

The differences between EU and national objectives are minor, from the perspective of pollutant concentration and measurement period only. However the difference between the assessment methods is very considerable.

Two specific examples of the differences between EU and national approaches are the locations where measurements are undertaken (e.g. the EU Limit Values are not assessed close to road junctions where concentrations can be greatest along with public exposure too); and the option (and practice) of excluding natural sources of PM in EU assessment. There is a need for LAs to assess local air quality and so the point is how the EU obligations can be assimilated into LAQM, whilst retaining the local assessments. The requirements for local measurements and modelled assessments to conform to the quality requirements of EU assessments would be onerous; furthermore the use of cheaper diffusion samplers for NO₂ would also not be permissible. Any decision on this would be more far reaching than outlined in the consultation and would need a full and detailed appraisal.

Paragraph 26 refers to the two systems (national and LAQM) as leading to different results. This requires investigation as to whether local information is incorrect or national information is incorrect otherwise it is premature to comment on.

England is not alone in having domestic regulations; our immediate neighbours in France and Scotland are two other examples. These should be regarded as a reasonable level of ambition to improve public health. The World Health Organisations (WHO) recently concluded that there is ample evidence that air pollution health effects exist at concentrations below the current EU Limit Values for NO₂ and also for PM_{2.5} (WHO, 2013). The original 2005 WHO recommendation for PM_{2.5} was 10 ug m⁻³ however recently it has stated that should be revised down even further. In light of this it would be irresponsible to relax the current national air quality objectives and assessment methods, unless there is full justification, including on cost-benefit grounds.

The short-term national air quality objective for SO₂ is different to the EU Limit Value but is justified on the basis of being the 15-minute equivalent of the WHO Guideline. In its 2006 report the WHO recommending tightening the SO₂ daily mean guidelines, it is therefore difficult to justify weakening the national air quality objective. Similarly the current national air quality objective for O₃ is in line with WHO Guideline, whereas the EU Target Value is not.

Q2. What are your views on the range of objectives local authorities should work towards and whether or not these should be reduced?

These should be broadened to include local actions on PM_{2.5} and local emissions of O₃ precursors, although it is unreasonable to require local authorities to be responsible for the local attainment of these objectives.

Q3. What contribution can local authorities make in reducing emissions and/or concentrations from PM_{2.5} pollution? Please provide examples, where appropriate.

Local measures should be taken to decrease primary PM emissions from traffic and other sources as summarised in Table 2 of the consultation. The WHO's REVIHAAP report highlights the need to reduce primary PM and this indicates that the role of LAs will become even more important (WHO,

2013). A LA role for PM_{2.5} is considered in paragraphs 32 to 34 of the consultation. It clearly should be a duty to reduce PM_{2.5} emissions and concentrations. Various possible options are outlined – the key point is that it is included as a priority for action.

Nitrate and secondary organic aerosol forms a large part of PM_{2.5} and once again local actions to abate traffic pollution e.g. using LEZs, graduated parking charges, pedestrianisation, etc can be important. Although individual local actions cannot necessarily lead to measurable decreases in concentrations the combined effect of local scale actions can be significant at a national level. The population health impacts are very significant from PM_{2.5} and by leaving it from LAQM it becomes no-one's problem to resolve (other than Defra). Actions on PM_{2.5} should be considered as part of optimisation of LAQM options and other LA strategies.

The annual mean concentration of PM₁₀ from wood burning in London is estimated at 1.1 µg m⁻³ and this will be almost entirely PM_{2.5}. To put this in a policy context, this PM from wood burning is considerably greater than the city-wide mean reduction of 0.17 µg m⁻³ predicted from the first two phases of the London LEZ which was introduced to reduce PM from traffic sources. During winter 2010, wood burning comprised around 12% of inner London background PM_{2.5}. With the likely growth in air pollution from this source and the substantial evidence that much wood burning in the southern half of the UK burning is for non-essential decorative reasons there is considerable work to be done at the local level to reduce PM_{2.5} from this source. Tighter planning/ building regulation and revised Clean Air Act requirements on wood burning will assist. Similar issues apply to coal burning in areas where it is commonplace and evidence is also emerging of local PM from cooking, although this needs new research before any action can be justified.

Q4. Which option will best help to support Aim 1?

Aim 1 combines two separate issues; improving public health and working towards EU standards. The latter needs to be widened as discussed above in our response to Q1. None of the options outlined fully address the weaknesses in the current system and working towards EU Limit Values only is not the optimal way to achieve benefits for public health.

Q5. What are your views on how cooperation between different tiers of local authorities can be supported?

Direct responsibilities should be placed on different tiers and other stakeholders such as the HA to assess and reduce the air quality impacts from roads under their control.

There is also a crucial need to ensure that each of the stakeholders (including other government departments) is fulfilling their allotted role. Currently Defra undertakes this role (in part). We see that an office independent of government could better undertake this role. To do this we suggest an Air Quality Commissioner is specifically appointed. This office should have the power to scrutinise, adjudicate, recommend and direct stakeholders on air quality actions. (Note - this is distinct from that of the Air Quality Expert Group (AQEG), who should separately continue to provide scientific advice only). The creation of this office would then permit Defra to focus on delivery only.

There is also a further need for all political stakeholders to move air quality up the scale of importance to achieve the air quality objectives/ standards for NO₂ particularly and to reduce PM. This requires better dissemination of the facts (to both stakeholders themselves and the public), especially of the actions that the stakeholders can take. At the moment it is one priority amongst many and greater ownership of the problem (i.e. who can undertake what improvement required) is needed. The ability to use independent assessment (as described above) would help identify who should be responsible for specific areas and help overcome the "silo" working described both at the local level and also importantly at the government department level.

Q6. Do you have evidence of where joint working has been effective and what has helped to achieve this or where it has been less effective in supporting action to improve air quality?

It is true to say that there were tensions between upper and lower tiers at the very early stages of local air quality management, however these have lessened. From our close working with the Sussex authorities we are aware of many examples of excellent joint working between upper and lower tier.

London has shown how active air quality management at both the citywide and local level can work with each government tier taking responsibility for assessing the air quality impacts from the structures within their control and working actively to improve air quality.

To date much of Defra's effort has been expended on ensuring that LA reporting has been undertaken in a highly prescribed fashion. This is wasteful and ignores that local authorities have existing powers to improve air quality. The Secretary of State also has existing powers to direct LAs if they are failing in their duties (under s.85 of the EA1995) and this should be seriously considered if Defra believe that LAQM is not working. The use of naming and shaming has also been used but only in connection with air quality reports and government grants. There is no reason that we can see for not extending this use further.

Q7. Do you think there is a need to review the allocation of responsibility for air quality between District and County authorities?

The responsibility for air quality is much wider than just District and County authorities. This is quite clear from Part IV of the 1995 Act. However if this question refers to the re-allocation of review and assessment duties to counties then the answer is simply "No", without further discussion, clarification and consultation, as this would potentially lead to the loss of local experience, innovation and accountability as discussed earlier. The current system also fits neatly with the "Localism" agenda.

County authorities do have existing strategic planning and transport functions to improve air quality. To date it is questionable whether these have been fully used. In addition has Defra used its powers to fully require this? A re-allocation of responsibility needs to satisfactorily address these points.

Furthermore as stated above, London has shown how active air quality management at both city-wide and local level can work with each tier taking responsibility for assessing the air quality impacts using the structures within their control and working actively to improve air quality.

The focus of the proposed consultation therefore should change, as it appears currently too lower tier authority focused. Consequently it only focuses on the review and assessment aspect, rather than who is responsible for actions and what they are setting out to improve air quality.

Q8. Which option will best help to support Aim 2?

None of the options outlined in the consultation fully address the weaknesses in the current system. Option 2 with its focus on action planning most suits this aim, albeit with the creation of a new office to independently scrutinise, provide clarity and ensure that responsibilities along with a strengthened evidence base and policy feedbacks.

Q9. What are your views on the current air quality reporting requirements for local authorities and how they could be simplified?

Previously "excellent" LAs were exempt from air quality reporting. It seems sensible to amend this "exemption" to other LAs. This will help with the "Red Tape Challenge". We suggest that LAs with AQMAs (or with AQMAs recently revoked within the previous 5 years) only continue to undertake annual reporting. In addition any LA undertaking continuous O₃ or PM_{2.5} monitoring for public health purposes should also continue to produce annual reports. Also if air quality were to worsen in a LA area (e.g. if shown by a Defra or other assessment), then that LA would also be required to submit reports.

It would be helpful to learn more fully of the resource used to produce reports. Evidence provided to Defra on cost savings for the Impact Assessment indicated that the individual cost of USAs and PR were not great per LA (typically £1 to £2.5k). It is therefore hard to see how this cost can be used to implement measures to improve air quality. Furthermore it would not be possible to see how the resource was diverted therefore it is unworkable. The costs of reporting and assessment are also extremely minor compared to the cost of interventions and the health costs of air pollution.

The difference between the recommended templates for updating and screening assessments (USA) and progress reports is small, with the latter being 59 pages against the 57 for the USA. This

suggests that any savings along the lines of removing the USA reporting requirement, as outlined, will be marginal at best. However Option 2 could sharpen the reporting to focus on 'actions' to achieve the air quality objectives based on local assessments and data rather than the local reporting of trends and confirming specific QA/QC details.

Q10. Do you think there is a need for a more public facing local air quality report which provides an annual review of action taken to improve air quality?

Yes, this will help on a number of counts, especially in assisting raising the profile of air quality (discussed in Q.5) and ensuring that responsibilities are met (see Q.7 response). On this specific point an improved Option 2 will facilitate better local air quality reports for the purposes of communication and also enhanced collaboration with Wellbeing Boards and Directors of Public Health.

Q11. Do you think there is a need for a better line of sight between local reporting on air quality and what we report to the EU about local action?

Yes. A national framework of measures that LAs can adopt would achieve this. Such a framework would make substantial cost savings in the implementation and reporting of local actions. A central database of local actions could be set up for local authorities to record and report their actions. This would further simplify EU reporting.

Q12. Do you think the current arrangements for AQMAs should be retained or should they be removed and/or local authorities given more flexibility in applying them?

There is a need to both retain AQMAs and improve the current arrangements as discussed earlier in "Progress towards attaining air quality limit values, air quality strategy objectives and revocation of air quality management areas".

The current arrangements treat all AQMAs as the same, by which we might mean a whole LA designation in a polluted conurbation e.g. in London or alternately it might mean a small narrow street in a village, dominated by relatively little, but congested, traffic e.g. Watlington in South Oxfordshire. Whilst there are general similarities between these, e.g. both are dominated by traffic sources, in all other respects, from the geographic size, local and background pollution levels, public health exposure and consequent impact there are major differences. This suggests that there is a need to distinguish types of AQMA, particularly if progress towards revoking AQMAs is a main criterion for measuring the success of LAQM.

The examples given in the box below are suggested to illustrate a classification of AQMA types and stakeholder actions. Such a classification will permit differentiation on many levels specifically enabling partnerships and allocation of responsibilities for action. These can all be agreed and signed up to in an updated action plan. Funding sources can be identified and built into local transport plans, plus governmental and other budgets, in a co-ordinated and transparent manner. Importantly these should be reported in the progress report along with other metrics and so would show progress towards achieving targets and revoking AQMAs.

This is clearly only an outline but it indicates an improvement on that proposed in the consultation paper, whereby only the revocation of an AQMA is considered a success for air quality management.

The classification also allows actions to be better outlined by Defra and it will permit Defra and other government departments the opportunity to input directly into action plans where needed. Such input is not without precedent for example in connection with the emissions from the Stewartby brickworks in Bedfordshire and in earlier actions with the Mayor for London.

(Note - there is a precedent for revoking an AQMA of the type described for Watlington and that is that for the village of Great Barford where a bypass was built. We are however not aware of any whole Borough AQMAs being revoked yet.)

- 1) LA-wide AQMA – this AQMA type describes a built up urban area with multiple roads with high levels of NO₂ and PM that exceed one or more objectives, covering the whole LA area (hence it can be termed Large). Concerted local and national action is needed to improve air quality to meet the objective(s).
- 2) Urban AQMA – this AQMA includes several roads that exceed one of the NO₂ or PM objectives. The rest of the LA is not designated (hence it can be termed Medium). A LA may have more than one such AQMA within its area. If there are many AQMAs (say > 5) then a LA-wide AQMA should be implemented. For an Urban-AQMA concerted local action by the LA (and County, HA, GLA or others, as appropriate) is needed to improve AQ to meet the objective(s).
- 3) Single street-AQMA – this type describes the through road type of AQMA in a village/ town (with added side streets where applicable). A LA may have more than one such AQMA within its area. The rest of the LA is not designated (hence it can be termed Small). If there are many AQMAs (say > 5) then a LA-wide AQMA should be implemented. For a Single street-AQMA concerted local action by the LA (and County, HA, GLA or others, as appropriate) is needed to improve AQ to meet the objective(s).
- 4) Partial AQMA – this describes a previously designated AQMA that is likely to be revoked. Monitoring (or modelling) has indicated that for 2 successive years the relevant objective has been met in the AQMA.
- 5) Other AQMA – this refers to an AQMA designated for non-traffic related reason e.g. an industrial or other source of pollutant emission. For this type of AQMA concerted local action is needed by the LA (and others e.g. EA, as appropriate) to improve AQ to meet the objective(s).

Q13. Which option will best help to support Aim 3?

Please refer to our earlier comments in Q9.

Q14. Would the availability of information on evidence based measures to improve air quality or reduce exposure help in developing local action plans?

Undoubtedly they would help and so this should form the basis of this review and future local air quality management. See comments above in the initial section “The need for an evidence-based action plans and feedbacks” and “National frameworks to support local action”, plus the response to Q.12 regarding a revision of AQMAs.

Q15. Do you have examples of good practice on the implementation of measures to improve air quality or to communicate on air quality?

Within LAQM there are many examples of both implementation and communication. We have described how London provides excellent examples of much good practice, see our “London and the major cities”, “The role of communities and local accountability” and “National frameworks to support local action” sections earlier.

Q16. Which option do you think is most likely to improve local air quality management and why? Do you have an alternative approach?

This question is open ended both in general and from the perspective of which we have responded to other questions. We have discussed suggestions to improve LAQM earlier (see e.g. the response to Q.12 and Q.15); these will lead to improvements as we envisage them. Our section “The need for evidence-based action plans and feedbacks” also describes examples of metrics that can be used to measure LAQM improvements. None of these suggestions however are based wholly on the Options as outlined; consequently an alternative approach or amendment of the Options is needed.

Additionally, supporting public health is a vital aspect of air quality management, yet it is not within the LAQM remit as such and this needs to be addressed to ensure continuity with new public health arrangements. The increasing evidence of air pollution health effects at levels below the current EU Limit Values further strengthens this view.

Q17. Are any of the options and their proposed changes to regulation, guidance and reporting likely to adversely impact on air quality, and if so to what extent?

Options 3 and 4 risk serious adverse impacts on local and national air quality by removing local action and diagnosis of air quality problems. National level assessments are not designed for the local situation and many areas of public exposure to high pollution will be missed. This may in turn lead to non-optimal solutions being undertaken, resulting in the waste of resources.

If Option 3 had been in place a decade ago, an over reliance on emission inventory assumptions of decreases in real world air pollution emissions would have already led to a serious misdiagnosis of the air quality conditions in the UK and a dismantling of much of LAQM despite continued real world breaches of air quality objectives and limit values. Option 4 is discussed in our response to Q18.

Options 1 and 2 are not without risk. As stated above air quality management requires more action from all stakeholders with central support for local actions working within a framework of evidence based measures with on-going information feedbacks.

Q18. Assuming no local air quality management requirements existed as proposed in Option 4 to what extent would local incentives and pressures from public health and amenities be sufficient to support local action to improve air quality?

Without local assessment we are convinced that local pressure to improve air pollution will become unfocused and this itself could lead to a potential waste of resources. Local accountability will also reduce or become absent and important issues of air pollution exposure will drop from local debate and action. Local authorities could instead become a portal for referrals to Defra and local MPs.

Local public health demands also require local assessment; this will not be possible without LAQM. Measures through the planning process are at best likely to be long term and, based on experience, these are also highly unlikely on their own to lead to sufficient air quality improvement.

Yours sincerely

The image shows two handwritten signatures in black ink. The signature on the left is 'Stephen Hedley' and the signature on the right is 'Gary Fuller'.

Stephen Hedley

Gary Fuller

References

Carlsaw, D. C., & Beevers, S. D. (2004). Investigating the potential importance of primary NO₂ emissions in a street canyon. *Atmospheric Environment*, 38(22), 3585-3594.

Environment Protection Authority (EPA) (2012), Options for wood smoke control in New South Wales, Discussion paper. New South Wales, Sydney, Australia.

Fuller, G. W., & Green, D. (2006). Evidence for increasing concentrations of primary PM₁₀ in London. *Atmospheric Environment*, 40(32), 6134-6145.

Harrison, R.M., Stedman, J., Derwent, D., 2008. New directions: why are PM10 concentrations in Europe not falling? *Atmospheric Environment*, 42 (2008), pp. 603–606.

Heath Effects Institute, 2003. *Assessing Health Impact of Air Quality Regulations: Concepts and Methods for Accountability Research*. Heath Effects Institute, Boston, MA.

World Health Organization (WHO) 2013, Review of evidence on health aspects of air pollution – REVIHAAP Project. WHO Regional Office for Europe