



A Clean Air Strategy for Northern Ireland – Public Discussion Document

CIEH response to DAERA consultation

February 2021

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Introduction

This response has been informed by environmental health practitioners in Northern Ireland (NI) who have significant professional expertise in this technical subject.

We welcome this consultation and congratulate DAERA on this initiative as until now NI has not had its own dedicated Clean Air Strategy. Clean air is vital for our health and wellbeing and a clean air strategy is therefore an important part of overall public health policy as well as of course the impact clean air has on other environmental parameters. Before making more detailed comments concerning the contents of the various chapters of the discussion document, there are some key strategic points that we feel are important to reinforce as they provide both context and overarching linkages between this strategy concerned clearly with clean air and other key policy challenges. These are summarised below.

1. It is vital that a Clean Air Strategy for NI must be developed and considered within the context of the Climate Emergency declared by the NI Assembly (NIA).

Transport and agriculture are the main sources of emissions in NI¹. These issues are directly linked, as sources, to the main air quality challenges faced in NI. There is therefore an inextricable linkage between climate change policy and a clean air strategy, and it is vital that the 2 are considered in parallel. The UK Committee on Climate Change produced a report in February 2019,² 'Reducing Emissions in Northern Ireland', setting out how NI can reduce its greenhouse gas emissions between now and 2030 in order to meet UK-wide climate change targets. The report recognises there are *'...wider benefits to climate action through reduced air pollution and other health benefits.'*

It is also vital, in our view, that NI follows the rest of the UK in the introduction of appropriate climate legislation. Clearly this would support and underpin any future clean air strategy. We are aware of the recent consultation on this matter to which we have also submitted a response.

We would also support the point made within the Northern Ireland Environment Link (NIEL) submission (CIEH are members of the NIEL Network) that there should be a much greater role for natural capital and the use of ecosystem services in dealing with air quality issues. For example, there is good evidence that trees help reduce both noise and air pollution as well as providing shade and oxygen. As outlined in the Department of Environment Food and Rural Affairs(DEFRA) "Impacts of vegetation on urban air pollution" report³ research has suggested that the total existing UK vegetation reduces the average annual surface concentration by about 10% for PM_{2.5}, 6% for PM₁₀, 13% for O₃, 24% for NH₃ and 30% for SO₂ (although did not markedly change NO₂ concentrations). Greater levels of tree cover will help contribute to better air quality and so must be a part of the solution. As noted in the UK Committee on Climate Change Report, the current rate of tree planting falls well short of meeting the Committee's recommendations for the fifth carbon budget or the average rate targeted in NI's most recent Forestry Strategy.

2. The air quality issues in NI are largely similar to the rest of the UK and Europe. There is, however, increasing recognition that existing air quality policy and frameworks are not delivering the expected improvements in air quality.

Although NI emissions from agriculture are significantly higher than in other parts of the UK, nonetheless NI faces many similar issues with air pollution to the rest of the UK and Europe - most notably, levels of nitrogen dioxide found in urban centres, arising principally from road traffic, in particular, diesel engines. In addition to this, NI faces problems with emissions from household heating and from agriculture.

Across the UK in general, local authorities use various means to achieve air quality standards, such as traffic and parking management, road design and planning, vehicle regulation, introducing Clean Air Zones, establishing Smoke Control Areas, enforcing statutory nuisance powers and regulating planning. However, in NI not all of the tools described above are available to Councils. Responsibility for traffic and parking management, road design and planning and vehicle regulation for example all sit outside local authority control. As a consequence, local air quality management areas (LAQMAs) in NI are perhaps less effective than they are in other parts of the UK due to local authorities lack of access to direct controls and therefore a need for better coordination with other departments and agencies who do have those relevant responsibilities. This simply underpins further the need for a much more integrated approach to the issue of air quality in NI.

3. Councils need better enforcement powers within existing provisions, particularly Smoke Control Areas (SCAs).

Current enforcement powers in relation to smoke control need to be reviewed and strengthened in order to assist Councils to deal more effectively with any non-compliance. Current provisions do not, for example, permit the power of entry to a domestic premises for the purposes of investigating potential contraventions in SCAs, for example the emission of smoke from a chimney. In effect therefore, even though smoke may be observed, the officer can be refused entry at the time of the potential contravention and must seek a warrant to return. In effect this makes the enforcement of any contraventions, where such action may be deemed appropriate, very difficult. A full review of offences and enforcement powers should be undertaken. The use of fixed penalty notices for breaches of smoke control legislation, combined with amendments to the legislation itself, to make evidence-gathering more effective, would assist with swift and targeted enforcement.

4. Improving public awareness

We are encouraged by the results of a recent YouGov survey⁴ which would suggest that there is a growing sense of the need to reduce levels of air pollution amongst the general public. For example, in a of young adults in 21 cities across six European countries in relation to mobility and air pollution,

- 69% of those surveyed in the UK do not want to go back to pre-pandemic pollution levels as they experienced good clean air.
- 79% of those surveyed in the UK agreed that cities must take effective measures to protect citizens from air pollution, even if it means preventing cars from entering the city e.g. through Zero Emissions Zones.
- 81% of those surveyed in the UK agreed that cities must take effective measures to protect citizens from air pollution, even if it means reallocating public space to walking, cycling and public transport.

However, despite this we believe that there is still a need for more efforts to improve public awareness of air quality issues amongst the NI public. Whilst air quality information is available to the public in NI, there is a lack of research to explore whether or not the availability of such data and information actually has any impact on public awareness or, perhaps more importantly behaviours. Northern Ireland is highly car dependent with over 70% of all journeys made by car.⁵

Given the extent to which air quality issues in NI are linked with traffic, and the cultural reliance on private cars within NI, this warrants further study. Transport behaviour change amongst the public in NI was also cited within the UK Committee on Climate Change report in 2019 (previously referenced at point 1).

Chapter 1 - Sources and Effects of Air Pollution

1. Should there be legally binding targets for particulate matter, which are based on WHO guidelines?

Yes. We support the adoption of World Health Organization (WHO) guidelines for particulate matter into binding targets for NI. The WHO has concluded in 2013 that there is 'no safe level' of particulate matter (PM) air pollution, and that exposure to relatively low concentrations the effect of air pollution on health is significant.⁶ The exhaust from diesel engines (consisting mostly of particles) was classified by the International Agency for Research on Cancer as carcinogenic (Group 1) to humans.⁷

WHO's Air Quality Guidelines represent recommended maximum levels for pollution in ambient air that countries should aim to achieve and are set on an understanding of the human health impacts. WHO guidelines for both PM₁₀ and PM_{2.5} are more stringent than the corresponding EU Air Quality Directive or UK Air Quality Standard objectives and target values already set. However, the Scottish government has already written into legislation the requirement to comply with the WHO guideline on PM_{2.5}⁸ with pressure building in England to follow suit.⁹

In order to improve air quality and reduce harmful human exposure, ambitious targets must be set. We would therefore advocate that DAERA should likewise aim for compliance with WHO guidelines for both PM₁₀ and PM_{2.5}.

However, the responsibility for achieving these targets should sit with a range of bodies, not just with local authorities. A collaborative approach and joint working between local and regional bodies as well as the government and other agencies should enable these targets to be achieved through a range of local and national measures.

Certain seasonal and weather conditions will present challenges in meeting targets. For example, significant levels of PM_{2.5} come from natural and agricultural sources (bio-aerosols), which are difficult to regulate or attenuate. Whilst this may not affect long-term annual mean exposures, it will have an impact on short term targets. However, this also highlights that a range of approaches are needed to reduce pollution from all sources and plans made to prevent high pollution episodes as much as possible, including any feasible changes in operation of agricultural industries.

2. Should all automatic monitoring sites measure at least NO_x and PM?

In principle this appears a good idea since the availability of a greater number of air quality monitoring sites measuring a greater range of pollutants can only improve the resolution of the Air Quality Interactive Map and hence better inform the public of the air quality in their locality.

However, there are some further issues that need to be considered.

The current approach for air quality monitoring was established to support assessment of compliance with air quality objectives; it was not set up to provide information to inform air quality alerts. Thus, only specific pollutants are monitored at specific locations, where, according to predefined criteria, they are deemed to present a problem. During a widespread air pollution episode, it is likely that sites measuring PM will register 'HIGH' levels, while sites measuring only NOx could measure 'MODERATE' or even 'LOW' levels. We believe that this presents a misleading picture to the public, since, looking at the Air Quality Interactive map would suggest that air pollution levels are only a problem in particular locations and not others, while the overall extent of the problem is merely limited by available monitoring.

The main source of PM is domestic or industrial whereas nitrogen oxides (NOx) are related road traffic, therefore having a single monitoring location for both pollutants would not always be appropriate, particularly where the site is in a residential area.

Measuring both pollutants at roadside sites may be beneficial, however some existing site locations may not allow for an additional monitor to be located at it e.g. NOx analyser enclosures, located at roadsides may only be capable of holding one monitor.

Any extra monitoring will come at a cost. We are aware that district councils have ever tightening budgets. We would suggest that additional monitoring equipment only be included within existing automatic monitoring sites, or where new or altered emissions necessitate new monitoring sites in line with current Local Air Quality Management (LAQM) Technical Guidance. The use of low-cost monitoring technologies should also be used more widely to ascertain where more detailed monitoring may be required. Monitoring should continue to be provided with sufficient funding from central government.

3. Should the current urban air quality monitoring network be expanded?

Yes. However, this will require adequate financial resources for Councils in terms of added costs. District Councils review their air quality monitoring network annually through the current Review and Assessment Process and extend or reduce the monitoring sites accordingly.

4. Should a targeted approach to exposure, based on population, be used to expand the current monitoring network?

Yes, we would strongly welcome a targeted approach based on population exposure. The current approach of monitoring based on relevant locations has been effective in identifying areas of exceedance of air quality limits within existing standards. However, Local Air Quality Management has not been successful in reducing traffic emissions as Councils in NI do not have the necessary powers to deal with investment in roads or public transport (as outlined in the opening section).

There is merit in understanding the levels of air pollution where the greatest number of our population reside. This would help to target actions for maximum health benefits and health cost savings. Additionally, this could allow the focus of improvements in air quality to be made across NI as a whole, using broad interventions in relation to bituminous coal or petrol and diesel cars. In this

way the 'hotspot' areas of limit value exceedance may be tackled whilst also producing benefits for the health of the entire population.

5. What are your views on using a population figure of 10,000 as a threshold that triggers the requirement to monitor air quality?

Yes, we strongly welcome this proposal. A population figure of 10,000 seems appropriate in the context of NI. This should provide a wider picture of air quality across the centres of population whilst not precluding the need for monitoring in smaller, discrete areas where it is known that air pollution is a problem due to traffic flow or topographical effects.

There are a significant number of towns in which there is no air quality monitoring at present. Many of these are not insignificant in terms of population. If this approach were adopted, then the following towns and villages would become part of Northern Ireland's air quality monitoring network: Cookstown, Dungannon, Limavady, Enniskillen, Banbridge, Larne, Omagh, Antrim, Coleraine, Carrickfergus and Newtownards.

The overall number of monitoring stations in NI would rise to 31, if at least one station was sited in each of the above towns and would provide much better information about the air quality within these populated areas. Such expansion of monitoring would potentially assist in raising public awareness and engagement in the issue.

6. Should biomass heating be discouraged in urban areas or in areas with poor air quality?

Yes, in areas where existing air quality is poor as a consequence of PM₁₀ and PM_{2.5} (whether urban or otherwise), biomass heating should be discouraged. Biomass heating is associated with elevated levels of Particulate Matter emissions. Data suggests that the recent addition of large-scale biomass heating in schools and leisure centres within urban areas contributes the elevated levels of PM₁₀ and PM_{2.5}.

Specifically, in relation to biomass, the report produced by the UK Committee on Climate Change in February 2019¹⁰ recommends that '*biomass for heating in urban areas should not be supported due to air quality concerns*'.

7. Should the connectivity between air quality and noise issues be improved through requiring consideration of each in Noise and Air Quality Action Plans?

Yes. The WHO has ranked air and noise pollution as the two leading causes of the environmental burden of disease in the European Region.¹¹ The study was based on data from six countries, including the UK. Air and noise pollution share many of the same sources such as industry, aircraft, railways and road vehicles. Improving the quality of air can have a subsequent impact on improving the quality of noise, but only where mitigation measures are complementary.

Measures should be assessed holistically as there is the potential that in some projects to improve air quality this can have a detriment impact on noise levels. For example, by adding an extra lane to reduce levels of stagnant traffic, the road may be brought closer to the resident. This can be achieved through better connectivity between the local Noise and Air Quality Action Plans. However

it must be recognised that, although Councils are responsible for Local AQMAs and associated Action plans, there is a limit as to what councils can actually achieve as the key actions that will improve air quality are outside the control of Councils in central government departments and agencies. These include the Department for Infrastructure, Translink, Northern Ireland Environment Agency. Without ownership and responsibility for these agencies and departments to work towards common goals, air and noise quality improvements will not be achieved.

8: Given that air pollution, carbon emissions, and noise often share the same sources, what are your views on including noise and carbon emissions as a consideration in Low Emissions Zones?

Both noise and carbon emissions should be considerations in Low Emission Zones. Air quality and noise are often inter-related, especially in urban settings. As discussed in response to the previous question, it would make sense to tackle these two types of pollution together and to design holistic schemes to reduce both noise and air pollution.

As set out in the opening section of this response, climate change is important in its own right and should be tackled separately, as part of its own dedicated strategy. However, carbon emissions should still be a key factor in the design of Low Emissions Zones. Carbon emissions can be taken into account to check that none of the proposals or rules encourage any increases in emissions overall and preferably contribute to a reduction in carbon emissions.

Chapter 2 - Transport Emissions

9: Are there any potential measures not included here that you believe could help encourage a shift away from private car use to walking, cycling, and public transport?

The discussion document presents a number of typical measures to encourage a shift away from private car use. Additional considerations would be reduced public transport fares, fare subsidies and enhanced working from home policies.

With regard to encouraging working from home, the current Covid-19 pandemic has demonstrated the effectiveness of home working or blended working (part-home/part-office) for a large proportion of the population. This has significantly reduced journeys and eased the morning and evening rush-hours and existing data suggests a notable improvement in air quality.

There may also be the possibility of developing public sector hubs as an alternative to traditional decentralisation. These would provide shared 'hot-desk' office accommodation for a range of government departments and public services in smaller towns across Northern Ireland. This could reduce the need for long commuter journeys to larger urban centres and would increase the likelihood of workplaces being accessible by walking or cycling. There may also be economic benefits in regional towns as they could make use of vacant commercial property which is a common blight of high streets in NI.

Design of our public spaces and urban centres is a vital consideration. Emphasis should be placed on the attractiveness of such areas for the pedestrian and cyclist rather than the private car.

10: What would encourage you to consider buying an electric vehicle as your next car?

Electric vehicles have a number of air quality benefits with none of the exhaust emissions at source associated with petrol and diesel vehicles. In addition, the electricity can be generated by a renewable power supplier.

However, in our view, until such times as the cost of ownership of an electric car falls below that of conventional propulsion, there is unlikely to be a major uptake of electric vehicles. The strategy of interest-free loans, improving the existing charging infrastructure and improvements in vehicle range are all positive steps in encouraging uptake. The UK Government commitment to the phase out of new petrol and diesel engine sales is also welcomed as a key indicator to supporting industries and technologies to develop to support this ambition.

11: Would you be in favour of Low Emissions Zones for urban areas also covering other sources of pollution, for example those from household heating?

A Low Emissions Zone Framework should be developed specifically dealing with transport emissions only. Household emissions can continue to be addressed through Air Quality Management Areas (AQMAs) and Smoke Control Areas (SCAs).

However, any businesses contributing to poor air quality in an area, such as restaurants and kitchens using charcoal grills as a means of cooking food, should also be included in the SCAs legislation or as part of AQMAs.

Low Emission Zones are currently set up to tackle transport related emissions. Low Emission Zones can incorporate many measures, such as might already be found in AQMA Action Plans, but at their most stringent they entail the restriction of certain vehicle types, or introduce monetary charging for vehicles to enter the zone. They are a means of providing an overarching umbrella approach to tackling air quality in areas of exceedance.

However, if DAERA's preferred option is for Low Emissions Zones will incorporate all sources of pollution within a designated zone, we would request the publication of a discussion paper on the Low Emissions Zone Framework and further detail on the mechanisms and outcomes.

12: What are your views on vehicle charging cordons for entry to the most polluted parts of urban areas in Northern Ireland?

The ultra-low emission zone introduced in London in 2019 has been found to be successful in reducing the number of the most polluting vehicles in the city by 58% within the first month of operation.¹² Other Clean Air Zones across England with vehicle charging rules are due to be introduced in Bath, Birmingham and Manchester. Clean Air Zones are designed to suit each city's individual needs, often by setting a minimum standard for vehicles entering the city. As a result, the most polluting vehicles are penalised and discouraged from entering the city and thus contributing to cleaning up air pollution in the city centre. We believe that a suitable scheme can be designed for appropriate cities in NI, particularly Belfast, in order to discourage the most polluting vehicles from entering the city centre and encouraging people to purchase cleaner vehicles.

If overall traffic levels are to be reduced, viable alternatives to the car need to be made available, in order to give people an alternative means of getting into city centres. Better home working policies from all employers can also have a large effect on the number of people needing to travel in and out of city centre locations. An overall reduction in the number of journeys should be one of the key goals of any charging scheme.

Chapter 3 - Household Emissions

13: Should urban areas, in their entirety, be designated as Smoke Control Areas?

Yes. We strongly agree that designating urban areas in their entirety will allow for easier enforcement by combining the existing patchwork of Smoke Control Areas (SCAs) into a single area. There should be a subsequent reduction in the habitual burning of 'smoky' fuels and associated improvements to air quality albeit involving only a relatively small number of dwellings.

Emissions from household use of solid fuels presents a significant problem for local air quality. The highest levels of pollutants are emitted from solid fuels, such as coal, peat and wood, although emissions are significantly reduced in the case of 'smokeless' coal and other 'smokeless' fuel products. Oil and, to an even greater extent, natural gas emit far less air pollution.

The Clean Air (NI) Order of 1981 introduced controls for the emission of smoke in urban areas. Under the Order, a district council can declare parts of their district as a SCA. In a SCA, the emission of smoke from a chimney is prohibited. Households may only burn 'authorised fuels' in any appliance, or use 'exempted appliances' when burning specifically prescribed fuels other than authorised fuels. This means that the burning of bituminous ('household' or 'smoky') coal in an open fire would be prohibited entirely within an SCA be it for primary or secondary heating. Using the existing Clean Air Order framework, when new/extended SCAs are declared, then district councils and the Department must contribute to the cost of any work that householders must carry out (for example, installing oil-fired or gas heating systems) to ensure that they are able to comply with Smoke Control provisions. Overall costs to support householders with respect to conversion works should not be extensive as only a very small percentage of dwellings will be eligible for grant support. Those built post 1964 and/or those with a primary smokeless means of heating will not attract grant support.

The change involving larger numbers of households will therefore be to prohibit the burning of smoky fuels such as peat, wood and household coal within secondary heating systems such as stoves. The use of such secondary heating through stoves has become a popular trend within the past 10 years. Prohibiting the use of smoky fuels in such appliances will require considerable buy-in from the public to be successful.

A full review of enforcement powers for Council officers will be necessary should Government wish to ensure a high level of compliance. Officers will need the power to inspect the fire and fuel within it at the same time as the emission is observed from the chimney pot rather than being required to provide a period of notice to the homeowner. This current requirement in effect makes enforcement action, where deemed appropriate, impossible as the necessary evidence is impossible. The chain of evidence breaks down when inspecting residential fuel supplies 2-3 days after the smoke has been observed and is much less likely to result in enforcement action where a

smoky chimney is witnessed. In addition, powers will be needed to take samples of the fuel being combusted to establish whether it is or is not smokeless fuel.

It is suspected that the general public has little understanding of these levels or the impacts of their actions. Enforcement action from Central Government and Local Councils is likely to be resisted or perceived negatively without some awareness raising amongst the population. It is strongly recommended that this is carried out across NI and co-ordinated centrally in advance of any of the new enforcement measures discussed in this chapter.

14: Should the law should be changed so that non-smokeless fuels may not under any circumstances be sold in Smoke Control Areas?

Yes. Legislation states that unauthorised fuels are only allowed to be sold in SCAs where the use is not intended within the SCA. In practice, this is difficult to monitor and enforce. A further restriction whereby non-smokeless fuel may not be sold in a SCA will make it more difficult to obtain smoky fuel but not prohibitive; those wishing to flout the law, could still purchase 'smoky' fuels outside of the SCA.

Councils remain concerned that some fuels labelled as smokeless do not perform as such after the lighting up period. The offences as currently drafted only relate to smoke caused by the burning of a fuel that is not smokeless.

15: Should government ban the sale to the general public of smoky/bituminous/household coal in Northern Ireland?

Yes. The strongest evidence for air pollution from household heating comes from levels of PAHs monitored at sites here in NI. The three NI monitoring sites – Derry/Londonderry Brandywell, Ballymena Ballykeel and Kilmakee Leisure Centre - have recorded the first, fifth and sixth highest annual mean values of Benzo[a]Pyrene in the UK in 2017.

B[a]P monitored in urban settings in NI are comparable in magnitude to those monitored in locations with heavy industry in England and Wales. This illustrates that there is a significant problem with B[a]P levels in residential settings in NI.

The Republic of Ireland recently banned the sale of 'smoky' coal in towns over 10,000 population and have already noted improvements to air quality, although some unauthorised burning still occurs. The ban of smoky coal in NI would significantly improve air quality in local residential settings. It would also have the benefit of reducing regulatory burden by reducing the opportunities for burning the most polluting solid fuels. However, in order to effect such a ban, the importation of bituminous Coal into NI is the only real effective and efficient way to achieve the same. And even if that were implemented, there will still need to be adequate regulatory provisions to deal with any movement of bituminous coal from ROI to ensure any ban in NI would be effective.

16: Should government ban the import, into Northern Ireland, of high-sulphur coal?

Yes. A ban on importation of high-sulphur coal could help to reduce sources of high sulphur fuel in NI. Burning high sulphur fuels leads to increased emissions of sulphur dioxide and particulate matter

in the atmosphere. The Sulphur Content of Solid Fuels Regulations (NI) 1998 currently specify that the content of sulphur that is permitted in solid fuels for sale in Northern Ireland may not exceed 2 per cent. We note with concern that, based on information from our members, some manufactured smokeless fuels and household coal can have levels in excess of this limit. We understand that Councils in NI have recently communicated with local coal suppliers to remind them of the need to ensure compliance with the 2 per cent sulphur content limit. A failure of compliance in this regard will result in higher sulphur dioxide and particulate matter in urban areas, which are reliant upon solid fuel burning. The 2 per cent limit is set in 1998 regulations and it is strongly recommended that these be reviewed to reflect modern analytical methods to enable Councils to effectively enforce these requirements.

17: Should government ban the sale to the general public of unseasoned wood in Northern Ireland at retail outlets?

Yes, banning the sale of unseasoned wood in NI will assist with reducing particulate matter emissions and would therefore be welcomed. In England, regulations have been made whereby all wood sold for domestic combustion in volumes under 2m³ must have a moisture content of 20% or less.¹³ These regulations will apply from May 2021. This is in line with measures within the Republic of Ireland.

However, not all unseasoned wood burned in NI is purchased by retail sale. Often wood is sourced from fallen trees, waste etc. This is rarely seasoned adequately. In our opinion it would be virtually impossible to enforce a prohibition on the use of unseasoned wood. However, efforts should be made to raise awareness of the pollution impact of its use amongst the general public. This is particularly important as many may well perceive that their use of a renewable fuel source is actually good for the environment.

18: Are there any further things you think that central and local government could be doing to address air pollution from burning solid fuels?

Yes. A small levy on solid fuels would assist in shifting the public away from burning solid fuels to other alternatives. Income raised could be ring-fenced to support conversions to less-polluting heating systems for those in need of financial support. Anyone found to be living in fuel poverty should be identified and supported rather than charged a levy.

As outlined in the opening section, current provisions for Smoke Control Areas (SCAs) should be reviewed. SCAs are historically difficult to enforce, largely due to the way that the regulations are written. A full review of offences and enforcement powers should be undertaken. The use of fixed penalty notices for breaches of smoke control legislation, combined with amendments to the legislation itself, to make evidence-gathering more effective, would assist with swift and targeted enforcement.

We consider it necessary raise awareness across NI of the need to use less polluting solid fuel and especially the use of unseasoned wood. Changes to behavioural habits across our urban areas are unlikely to be well-received or widely complied with unless those affected are informed about why the changes are happening and the benefits that will result to human health and the local environment.

Chapter 4 - Agricultural Emissions

19: Do you think that the process in place to address ammonia emissions in Northern Ireland is appropriate?

No. Agricultural activities can give rise to a number of different air pollutants. Particulate matter, emitted directly from poultry and pig farming, is estimated at 22.7% of NI's total PM₁₀ emissions in 2015. The main pollutant of concern from agricultural activities is ammonia. As well as acute effects at high concentrations, ammonia can indirectly have significant impacts on human health, through the formation of secondary inorganic (ammonium) compounds, which are a component of fine particulate matter, specifically, PM_{2.5}.

However, ammonia is not classed as a local air quality pollutant. This means that there are no limits or targets for ammonia in ambient air in the EU ambient air quality directives 2008/50/EC and 2004/107/EC, which cover, for example, pollutants like NO_x, PM and SO₂. Nor are there limits in ambient air for ammonia in the UK Air Quality Strategy; district councils do not measure levels of ammonia in urban centres.

Ammonia is to some extent, controlled under the Pollution Prevention and Control Regulations, which specify the amount of ammonia which may be emitted from each individual industrial premise or agricultural installation exceeding certain specified thresholds. The thresholds are for example: for poultry installations, 40,000 birds; pig farms with more than 750 sows or 2,000 production pigs of at least 30kg. However, there is currently no overall statutory means of limiting ammonia emissions across NI.

The management and application of manure from livestock housing is the key driver of ammonia emissions in NI and is responsible for a combined 85% of all agricultural emissions. Given ammonia's significance in concentrations of PM₁₀ and PM_{2.5} within NI it is impossible to separate agricultural emissions from local levels of particulate pollution.

The Department has set up an Ammonia Project Board, specifically tasked with examining the issues and evidence surrounding the ammonia problem in NI, its negative impacts on biodiversity and habitats, and the difficulties it presents for the expansion of the agricultural sector in NI.

The Ammonia Project Board is welcomed. It is hoped that this Project Board will bring about significant reductions of ammonia within the agricultural sector, which will allow the necessary headroom for industrial expansion to meet economic drivers. The Project Board should be required to have consideration of the health-based impacts of PM₁₀ and PM_{2.5} levels within air quality standards as agriculture is the key emitter. The focus of the Board is on environmental protection; however, it is important that the work of the Project Board is not treated separately to the human-health focussed control of local PM₁₀ and PM_{2.5}. In addition, decreasing the thresholds for IPPC for poultry and pig installations will bring more of the industry under regulation and provide the opportunity to further reduce emissions from numerous smaller installations.

Chapter 5 - Industrial Emissions

20: Are there any industrial sectors or air pollutants that require new or further investigation?

Yes. Industrial activities play an important role in the economic well-being of NI by contributing to sustainable development and growth, but this can also have a significant impact on the environment. The industrial sector accounts for a significant proportion of air pollution emissions in Northern Ireland and the sources include various types of activities ranging from large power stations to petrol station forecourts.

Chapter 6 - Local Air Quality Management

21: Should councils more widely adopt low-cost air quality monitoring systems, for screening purposes?

Yes. The use of low-cost air quality monitoring systems for screening purposes is welcomed, with co-location tests demonstrating good correlation with certified equipment.

The Environment (Northern Ireland) Order 2002, as amended, requires local government councils to review the quality of the air within their districts. Part of this review is an assessment of the quality of air against an agreed set of standards. Where these standards are failing to be achieved the council may designate AQMAs, and an Action Plan must be developed for each area. This management system lies at the foundation of improving air quality in NI.

With the emergence of low-cost monitoring technologies, there is now scope for increased monitoring of pollutants such as PM and NO_x. It is acknowledged that the accuracy of these instruments cannot be validated in the same way as certified automatic monitoring systems in place at permanent monitoring stations. However, there is perhaps a place for these monitors in the LAQM system, for screening purposes. Under the LAQM grant scheme, councils could consider purchasing and installing low-cost monitors, which would enable them to undertake screening assessments for air quality. These screening assessments could help councils decide whether or not more detailed assessments of air quality are needed and whether certified automatic monitoring equipment should be installed.

22: Should AQMAs be discontinued and replaced instead with Low Emissions Zones, which cover all aspects of air quality, including Smoke Control?

Low Emission Zones can incorporate many measures, some of which might already be found in AQMA Action Plans, but at their most stringent they entail the restriction of certain vehicle types, or introduce monetary charging for vehicles to enter. They are a means of providing an overarching umbrella approach to tackling a specific air quality issue in broad areas of exceedance.

As previously stated, our preference is that Low Emissions Zones should be developed specifically for dealing with transport emissions and other aspects of air quality including smoke control should be dealt with separately through AQMAs and SCAs.

We would welcome a discussion paper on a Low Emissions Zone Framework and further detail on the likely outworking and outcomes prior to determining a preference of the existing AQMA approach.

23: Where applicable, should the entirety of urban districts should be declared as AQMAs (or Low Emissions Zones)?

Yes. Where applicable, we would support wider urban AQMAs/LEZs to improve air quality. The current approach with AQMAs has been to focus on pollutant hotspots. This has proven unsuccessful in dealing with transport emissions. However, emerging best practice suggests solutions to air pollution hotspots are more readily achieved by spreading the focus to wider urban areas; for example, traffic emissions at a particular junction are best considered in the context of wider urban infrastructure. This approach means that there is less risk of pollution simply shifting from the known hotspot to another location.

A shift from localised AQMAs to wider urban LEZs could bring the following benefits:

- Expanded geographic coverage for improving and safeguarding air quality
- Consideration of all aspects of air pollution
- A greater focus on the use of transport and the mitigation of emissions across the wider population rather than just for those who happen to live in or drive through hotspot areas
- Improved public communications on air quality
- Unlike AQMAs, the impetus would not be to revoke the LEZ, but rather to keep it in place to continue to safeguard air quality. Instead, the goal would be to improve and then maintain the status of the LEZ. This would be more appropriate given that there is no 'safe' level for some pollutants.

24: What are your views on having a traffic-light system for councils to report on?

Yes, however, reporting of councils' work should be published together with a wider report by the NI Government on the steps taken to improve air quality. Such a system would aid understanding by the general public with regards to air quality in their area, which in turn could help obtain support to address air quality issues and provide accountability to relevant authorities.

The divergence between LAQM reporting and central Government reporting for (pre-EU exit) Directive compliance creates significant confusion. The vast majority of AQMAs are not reported upon by central Government, which leads to the perception that outside of the Belfast urban area there are no air pollution issues. Furthermore, the measures required to address transport emissions for Directive compliance (electric vehicle infrastructure, public transport investment etc.) are exactly the same as those necessary to address AQMAs (albeit involving smaller numbers of exposed persons).

We strongly believe that the systems of central and local Government reporting must be aligned so that they complement each other. Measures that are being carried out centrally by Government Departments must be reflected in Local Air Quality Action Plans. To omit these, leaves the Action Plan only populated by 'lighter', educational and promotional measures within the remit of Local Councils. Therefore, we recommend that central Government reports annually on the measures being developed and carried out at that level and that this information is then incorporated into each of the Council's LAQM Action Plan progress reports.

An aligned system will place the focus on national measures where this is required – as LAQM has not had the ability to tackle transport emissions – and will be easier for stakeholders and members of the public to understand.

25: What are your views on the proposals to change the LAQM process, in particular to grant funding for outcome-based measures as opposed to monitoring?

We disagree with this approach. There is a need to provide grant funding for both monitoring and outcome-based measures. Without continued monitoring, it will be difficult to determine the success of outcome-based measures.

26: Are there any further measures you would suggest to help achieve a significant reduction or revocation of all AQMAs by 2021?

There are currently no further measures to assist with the revocation of these AQMAs by 2021.

Chapter 7 – Communication

27: Do you have any suggestions for the membership of the Air Quality Forum?

DAERA has committed to setting up an Air Quality Forum, which is intended to, among other things, oversee measures associated with improving the air quality indicator, as well as to discuss any reforms coming from this review of air quality policy. DAERA feel that the Forum would also be the ideal place to discuss, with stakeholders, the more effective communication of air quality impacts and the role that individuals can play in reducing air pollutant emissions.

We would agree that an Air Quality Forum would also be the preferable platform to discuss, with stakeholders, the more effective communication of air quality impacts and the role that individuals can play in reducing air pollutant emissions.

It is important that local government is suitably represented at the AQ Forum, along with those bodies that influence outcomes (e.g. Translink, industry etc.), with a strong commitment from central government including DFI and DFC, (e.g. Land Use Planning Regime). Other agencies that should be considered in membership include EA and NIHE. We also believe that CIEH could offer independent professional input to such a forum, as well as potentially assisting with research, evidence and improving public awareness.

28: Is increasing awareness of air quality impacts at a local level is the best way of promoting behaviour change by individuals to reduce air pollution?

Yes, but this is dependent on the behaviour the awareness raising is attempting to change. Local public awareness has a role alongside the use of penalties and incentives where appropriate. Regional initiatives such as Clean Air Day are worthwhile and initiatives highlighting linkages other strategies such as climate change and sustainability may help to promote behavioural change. However, heating of homes and transport emissions are necessities of daily working and living. Drivers do not sit in traffic congestion because they want to; it is not simply a matter of informing

the public regarding emissions and hoping that their conscience will bring about a behaviour change.

Better alternatives must be presented to the public driven by Government investment and where necessary support for technological developments. The most obvious focus will be expected to be in relation to electric vehicles.

Additionally, use of appropriate regulation to phase out the most polluting activities combined with support for those adversely affected by any such change.

Successful examples for this type of intervention already exist. The introduction of Smoke Control Areas made a huge improvement in urban air quality and smog s now a very rare occurrence rather than a regular one. Lead emissions were all but eliminated by regulation phasing out 4-star fuel combined with support for the development of unleaded fuel and engines.

29: Do you have any further comments or suggestions on how the impacts of policy interventions can be tracked in Northern Ireland.

It is noted that there is a recent trend in diesel car and HGV modification to remove the diesel particulate filter to improvement efficiency, performance or bypass an error code that would fail an MOT/PSV. Persons who provide such a service openly advertise on social media, business websites and trade publications. Given the significant increase in emissions as a consequence of diesel particulate filter removal, focus should be given to this growing sector.

The continuation of air quality monitoring is key to tracking progress. Other sources of information include the use of health statistics, counts of cycling, walking or vehicle activity.

¹ <https://www.theccc.org.uk/publication/reducing-emissions-in-northern-ireland/>

² <https://www.theccc.org.uk/publication/reducing-emissions-in-northern-ireland/>

³ DEFRA Impacts of vegetation on urban air pollution https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1807251306_180509_Effects_of_vegetation_on_urban_air_pollution_v12_final.pdf (page 29)

⁴ <https://www.transportenvironment.org/sites/te/files/publications/Briefing%20-%20polling%20Covid-19%20%26%20mobility.pdf>

⁵ <http://www.niassembly.gov.uk/globalassets/documents/raise/publications/2017-2022/2020/infrastructure/5720.pdf>

⁶ https://www.euro.who.int/_data/assets/pdf_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf

⁷ https://www.euro.who.int/_data/assets/pdf_file/0006/189051/Health-effects-of-particulate-matter-final-Eng.pdf

⁸ Paragraph 25, Cleaner Air for Scotland 2– Draft Air Quality Strategy Consultation, Scottish Government, Oct 2020

⁹ <https://www.healthyair.org.uk/strong-clean-air-laws/>

¹⁰ <https://www.theccc.org.uk/publication/reducing-emissions-in-northern-ireland/>

¹¹ <https://www.euro.who.int/en/health-topics/environment-and-health/pages/evidence-and-data/environmental-burden-of-disease-ebd>

¹² <https://airqualitynews.com/2019/05/16/londons-ulez-shows-early-success-in-deterring-polluting-vehicles/#:~:text=Research%20into%20the%20impact%20of,London's%20notoriously%20poor%20air%20quality.>

¹³ <https://www.legislation.gov.uk/ukxi/2020/1095/introduction/made>