MAYOR OF LONDON

Agriculture Bill 2019-20: Written evidence from the Mayor of London

4 March 2020

Overview

- Ammonia emissions from farming are not only damaging locally but are an important contributor to $PM_{2.5}$ throughout the UK, including in towns and cities.

- Whilst most sources of air pollution are reducing, agricultural emissions of ammonia have been increasing since 2013.

- The Government has committed to regulating the farming sector to reduce ammonia emissions from the sector, but has not done so either through the Agriculture Bill or the Environment Bill.

- **As particulates derived from ammonia are the single largest contribution to imported "background" pollution[1] in London, the Mayor is concerned that this significant source of pollution is not being tackled and urges the Government to address this issue.**

Context: Clean Air Strategy 2019 and the Agriculture and Environment Bills

The Clean Air Strategy 2019 committed the Government to reducing ammonia (NH_3) emissions from farming: *"We will regulate to reduce ammonia emissions from farming by requiring adoption of low emissions farming techniques"*.[2]

The Clean Air Strategy is also clear that without action to reduce ammonia emissions from farming, not only is this type of pollution not expected to reduce, but the UK will not be able to meet its legal obligations under the National Emissions Ceiling Directive and related UK regulations.[3]

The Agriculture Bill proposes some limited changes to the Government's existing powers to regulate and monitor the content of fertilisers; but it does not include a mechanism to regulate farming techniques to reduce emissions.

Part 1 of the Agriculture Bill enables Government to reward farmers and land managers for delivering public goods, including improved water quality, increased biodiversity, improved animal welfare, and better public access to our countryside. However, there is no mention of air quality in this section.

The Environment Bill, which is also currently progressing through Parliament, does not refer to either farming or ammonia emissions.

Finally, while the Agriculture Bill recognises Government's role in providing financial support for public and environmental goods, Government continues to refuse to acknowledge the need to provide financial assistance for other sectors critical to improving our environment. For example, a national scrappage scheme for road vehicles would both enhance the benefits of the London Ultra Low Emission Zone (ULEZ) and other Clean Air Zones and reduce the impacts of road user charging on people who cannot otherwise afford cleaner transport.

There is therefore currently no mechanism proposed by the Government for making good on its promise to reduce ammonia emissions.

Recommendations

Government should acknowledge the critical role played by agricultural emissions in urban concentrations of $PM_{2.5}$ by:

a. Including emissions to air in the financial assistance provisions set out in clause one of the Agriculture Bill, and

b. Urgently making good on its commitment to use regulations to reduce emissions of ammonia from agriculture.

Background: Ammonia and urban pollution

In London, secondary inorganic particulates (i.e. those derived from ammonia) are the single largest contribution to imported "background" pollution.

Agriculture is the dominant source of ammonia (NH_3) emissions in the UK, accounting for around 87 per cent of all emissions.[4]

Unlike most other air pollutants, emissions of ammonia have been rising since 2013. Increased emissions from agriculture are believed to be responsible for this rise.

Ammonia forms particulate matter through reactions in the atmosphere and is an important contributor to concentrations of $PM_{2.5}$, the most harmful particulate matter.

In 2016 the estimated background concentration for $PM_{2.5}$ in London was 10.2 μg/m^3. This is already above the World Health Organization (WHO) guidelines for nearly 9 million Londoners, even before local emissions are taken into account.

During pollution episodes in London, around half of the cause can be particulates blown from agricultural and industrial sources. In 2019 alone there were three "moderate" $PM_{2.5}$ episodes

(more than three and a half times the WHO guideline) and two "high" episodes (more than five and a half times the WHO guideline), one of which lasted for five days.

Meeting the WHO target of 10 µg/m^3 of PM$_{2.5}$ by 2030 is already challenging for large urban centres, such as London. Without action to reduce all sources, including ammonia, it will be even more difficult for cities, who can only take action on local sources of pollution.

A recent independent report published by the Mayor of London[5] showed that committed actions to improve air quality in London would save 300,000 Londoners from diseases attributable to air pollution, such as coronary heart disease, lung cancer, and dementia; with a cost saving to London's NHS and social care system of around £5 billion by 2050.

Taking the national steps necessary to meet, or exceed, WHO target levels for PM$_{2.5}$ would result in even greater savings both within London and nationally.

As well as the impact on human health from PM$_{2.5}$, ammonia is directly harmful to ecosystems – contributing to both acidification[6] and eutrophication[7], which can damage biodiversity in areas of London's greenbelt.

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[1] "Background" refers to air pollution already present in air imported into an area as distinct from pollution emitted from local sources. As the import process takes time a variety of physical and chemical process can take place to transform pollutants, for instance allowing gaseous ammonia to transform into particulate nitrates (a component of PM$_{2.5}$). The impact of these processes is shown graphically in the Clean Air Strategy on page 29: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf In the diagrams "Distant upwind vapours (inorganic)" are predominantly nitrates formed from ammonia nucleation.

[2] See page 72 of the Clean Air Strategy (ibid)

[3] The National Emission Ceilings Regulations 2018: http://www.legislation.gov.uk/uksi/2018/129/contents/made

[4] Defra National Statistics Release: Emissions of air pollutants in the UK, 1970 to 2017: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/778483/Emissions_of_air_pollutants_1990_2017.pdf

[5] "Modelling the long-term health impacts of changing exposure to NO$_2$ and PM$_{2.5}$ in London": https://www.london.gov.uk/sites/default/files/modelling_the_long-term_health_impacts_of_changing_exposure_to_no2_and_pm2.5_in_london_final_250220_-4.pdf

[6] A reduction in the pH of soils and freshwater ecosystems over an extended period of time, leading to a loss of biodiversity.

[7] Excessive richness of nutrients in a lake or other body of water, which causes a dense growth of some plant species, at the expense of wider biodiversity.