

Research Briefing

**Urban outdoor air quality**

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Air pollution is the greatest UK environmental public health threat. This POSTnote updates the 2014 POSTnote on ambient air quality (PN 458) and describes air pollutants, their health impacts and measures to mitigate poor air quality.

The impacts of air pollution were highlighted by the 2013 case of Ella Adoo-Kissi-Debrah, in which high levels caused a severe fatal asthma attack. Ella is the first person in the UK to have air pollution listed as an associated cause of death following the 2020 inquest, which highlighted several organisations with responsibility for action on air pollution.

Air quality has been the subject of infringement proceedings by the European Commission against the UK and court cases brought against the Government by the environmental law charity ClientEarth.

The Chief Medical Officer’s 2022 Annual Report focused on air pollution, stating that “we can and should go further to reduce air pollution”.

PM is the broad term for microscopic particles suspended in air originating from a range of human-made and natural sources. PM is classified by size range, named according to upper-limit diameter in micrometres, and comprises coarse particles (PM10-2.5), fine particles (PM2.5) and ultrafine particles (PM0.1). NO2 is one of a group of gases called nitrogen oxides (NOx) but is the most harmful for human health. O3gas is not directly emitted but formed in the air. Ground level (tropospheric) O3 can be formed by photochemical reactions (driven by sunlight) of NOx and non-methane volatile organic compounds (NMVOCs) from various natural and human-made sources.

PM, NO2and O3 have legal limit values, but low concentrations can have health impacts and no levels safe for human health have been identified. Air pollution is linked to loss of life expectancy and various acute and chronic effects that disproportionately affect certain groups.

Across the UK, concentrations of these air pollutants are uneven.  Urban areas typically have poorer air quality, particularly deprived neighbourhoods.

Evidence demonstrating effectiveness of measures, such as road charging schemes, encouraging less polluting transport modes and domestic combustion interventions, is limited as attributing outcomes to particular interventions is difficult due to confounding factors (such as weather conditions, seasonality and impacts of other interventions) and the health effects long-term.

**Key Points**

* Air pollution is the greatest UK environmental public health threat. It is responsible for 29,000-43,000 UK deaths annually (based on 2019 data) and multiple health effects. Between 2017 and 2025, the total estimated NHS and social care cost will be at least £1.6 billion in England.
* Particulate matter (PM), nitrogen dioxide (NO2) and ozone (O3) are the air pollutants of most human health concern in urban areas. No safe lower limit has been identified for these pollutants, which disproportionately affect vulnerable groups.
* In UK urban areas, average PM and NO2 concentrations are decreasing over time while O3 shows a slight increasing trend. However, some urban areas exceed the World Health Organization’s Global Air Quality guidelines for PM and NO2.
* The Government is setting two targets for reducing PM2.5 to be met by 2040 including an annual mean concentration limit of 10 µg/m3. Modelling suggests that most of England will be compliant with this by 2030

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**COP27 Policy Paper**

**Youth and Environment Europe’s position at COP27**

**AGRICULTURE AND FOOD SYSTEMS**

**Overview:**

A decarbonisation and transformation of the agriculture and the food system overall is desperately needed, as it accounts for 20% of global emissions, including land use 1. Both substantially, moving from an industrialised meat-centred food system towards plant-based, as well as technologically advance regenerative, climate compatible practices of growing food.

For the first time in its history, the United Nations has officially acknowledged, through a landmarked vote of an United Nations Environment Assembly resolution in March 2022, that there is a nexus of animal welfare, human and environmental health and well-being. However far from putting the finger on the real issue - factory farming - this vote is giving hope that we’re finally addressing the cow in the room: industrial livestock production and consumption.

Activists and journalists alike have written about the political silence around this topic at COP26, and COP27 is announcing the same quietness. The presidency vision for the thematic day on Agriculture focuses rather on climate finance, adaptation, resilience and boosting technology for a better food system. Although welcomed, this alone will not tackle the core issue of the food and climate crisis we are facing, and will not advance efforts to end hunger globally, which is projected to stay the same as in 2015 - at 8% of the world’s population, increasing the prevalence in Africa 2.

**Key demands:**

● Endorse the Plant-Based Treaty to stop the problem increasing (no land use change, including deforestation, for animal agriculture) and eliminate the driving forces behind the problem (transition away from animal-based food systems to plant-based, regenerative, climate-compatible systems).

● As livestock is the biggest emitter of methane, act on and implement the Global Methane Pledge.

● Invest in research in the Global South for better understanding of the climate change related effects locally (from 1990–2019 research on Africa received just 3.8% of climate-related research funding globally)

● Include rural young people and women at the core of sustainable, climate-compatible, agricultural policy to make sure farmers have successors and local communities autonomy in producing their own food.

● Properly use traditional and indigenous knowledge, that provides a rich, diverse range of agricultural practices and solutions for local realities that could help improve adaptation actions for sustainable and resilient agrifood systems.

*1 Phoebe Weston and Jonathan Watts, ‘The Cow in the Room: Why Is No One Talking about Farming at Cop26?’ The Guardian (9 November 2021) accessed 14 October 2022.*

*2 In Brief to The State of Food Security and Nutrition in the World 2021 (FAO, IFAD, UNICEF, WFP and WHO 2021) 5 accessed 14 October 2022.*