

Ambient Air Pollution

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1. Ambient air pollution is another term for outdoor pollution, which is a direct result of human activity such as industry and traffic (The Clean Breathing Institute, 2018). Although indoor household activities can contribute to rising pollution levels, it is ambient pollution which is the biggest environmental health problem we face at present. According to the World Health Organisation (2021), outdoor pollution levels are just as high in rural areas as **they** are in cities, and it affects all countries, regardless of income.

2. Ambient air pollution is measured through the Air Quality Index, **which** focuses on five major components in the atmosphere. These are nitrogen dioxide, sulphur dioxide, ground level ozone (O₃) formed through a photochemical reaction of sunlight, nitrogen oxides (NO_x) causing smog, and particulate matter (PM), which is a combination of both solid particles and liquid droplets of organic and non-organic substances suspended in the air, such as dust, smoke, pollen and chemicals (WHO, 2021). PM is then further divided into three categories, from coarse, to fine and ultra-fine. Particles which have diameters of ten micrometres or fewer (PM₁₀) are considered coarse, whereas particles between PM_{2.5} and 1.0 are referred to as fine, meaning that anything less than PM_{1.0} is ultra-fine and the most toxic, but also not as frequently monitored (CBI, 2018). What is regularly monitored, however, is PM_{2.5}, which is used to determine how healthy the air is in cities and countries across the world. Currently the World's Air Quality Index (2021) claims that metropolises such as Beijing and New York are unhealthy, while Delhi is also unhealthy overall, but some areas are hazardous. In comparison, London is moderate, with a score of 61, and for a city's air to be deemed good, **it** must be lower than 50.

3. As previously mentioned, the main contributory factors of outdoor air pollution are from human activity. Although industrial purposes such as burning coal and other fossil fuels, and combustion processes used for generating power or heating have been the main reason for the ongoing rise in global air pollution, it is now believed that the major threat to clean air is pollutants emitted from petrol and diesel engines used in vehicles and ships. This is due to the amount of carbon monoxide, volatile organic compounds, NO_x and PM released, as well as the amount of O₃ produced through long-distance transport affecting both rural and urban areas (Department for Environment, Food and Rural Affairs, n.d.). That is to say, nowhere on this planet is free from air pollution, which means that anyone of us could suffer from harmful effects. According to CBI (2018), the lower PM, the more **it** is penetrated into the lungs, and the more effects one will suffer from, which range from respiratory symptoms such as a cough, wheezing and congestion, to more serious illness such as bronchitis, stroke, heart disease and lung cancer. For **those** with established breathing difficulties, such as asthmatics, continued exposure to air pollution could aggravate the condition, and even foetuses could develop chronic diseases in adulthood if exposed to pollution long-term. Most concerning of all, WHO (2021) states that in one year alone, ambient air pollution was responsible for 4.2 million premature deaths.

4. As WHO (2021) claims that in 2019 '99% of the world population was living in places where their air quality guidelines levels were not met', it seems more important than ever to begin tackling the problem of outdoor pollution. In capital cities such as Paris, New York and Seoul, measures such as prohibiting cars from entering the city centre, expanding pavements along the river to make space for more tree planting and bike lanes, and reinvesting money raised from congestion charges into public transport have had a considerable impact on reducing **those** carbon emissions which lead to poorer air quality (United Nations Environment Programme, 2021). Moreover, countries who adopt legislation such as the UK's updated Environment Bill, **which** imposes governments to set targets

regarding reducing the level of PM, as well as enabling local councils to place restrictions on smoke emissions, and forcing vehicle manufacturers to recall the most pollutant of vehicles (DEFRA, 2021), we will likely see significant reductions in air pollution from a variety of sources.

5. Although human activity has been responsible for the increase in outdoor air pollution, it is hoped that within the next decade human activity can also be the solution, thanks to the increases in green spaces, commitment to reducing the average level of PM, more sustainable modes of transport and more cooperation and accountability among businesses and local authorities.

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