

# Air Quality: Sandwell

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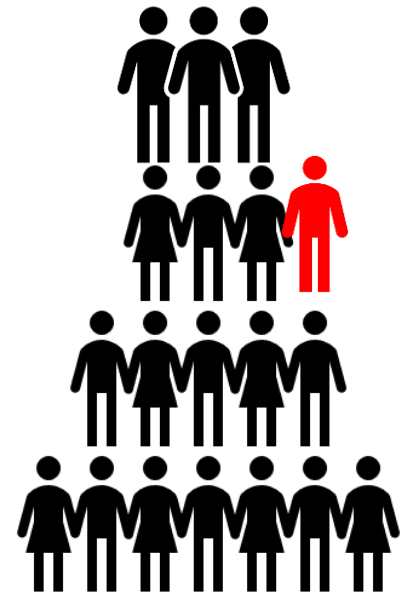
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# Air Pollution: Overview

- **Nitrogen Dioxide** ( $\text{NO}_2$ )
  - Primarily caused by combustion engines (e.g. **petrol/diesel cars**)
- **Ground level Ozone** ( $\text{O}_3$ )
- **Carbon Monoxide and Carbon Dioxide** ( $\text{CO}$  and  $\text{CO}_2$ )
- **Particulate Matter** ( $\text{PM}_{2.5}$  and  $\text{PM}_{10}$ )
  - 50% of  $\text{PM}_{2.5}$  generated in towns and cities is from **wood-burning stoves** and **coal fires**<sup>1</sup>
  - PMs have the **greatest** associated **health risks**
  - PAH's are **carcinogenic** and form from **wood burning**
- **Sulphur Dioxide** ( $\text{SO}_2$ )
  - 22% comes from **domestic burning**
- **Ammonia** ( $\text{NH}_3$ )
  - **Agriculture** is the main source

# Air Pollution: The Impacts

- Long-term exposure to air pollution is **killing 1 in 19 people** in the **UK**<sup>1</sup>
- People with **asthma, pneumonia, diabetes**, and **respiratory** and **cardiovascular diseases** and the **elderly** and **children**, are especially susceptible and vulnerable to the effects of PM<sup>3</sup>
  - Sandwell has a higher than average emergency hospital admission rate for **respiratory illnesses**
  - Sandwell has the **highest diabetes prevalence** in the West Midlands, and the second highest **in all of the UK**<sup>2</sup>
- According to a report by the European Court of Auditors, more than **10 times** as many people die as a result of **air pollution** than are **killed in road accidents**



# Air Pollution: Health



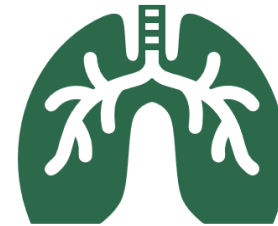
Chronic Respiratory Diseases (e.g. Asthma)



Stroke



Heart Disease



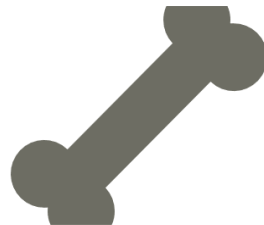
Lung Cancer<sup>2</sup>



Kidney Failure



Increase Infant Mortality Rate



Osteoporosis



Cancer



Sight Loss<sup>4</sup>

# Air Pollution: Mental Health

- Air pollution is linked to mental health problems. This includes **depression**, a reduction in intelligence equivalent to having **lost a year at school** (further impacted by Covid), and **aggressive** behaviour<sup>1</sup>
  - Research has also found an increased risk of **bipolar** disorder, **schizophrenia** and **personality disorders**<sup>2</sup>

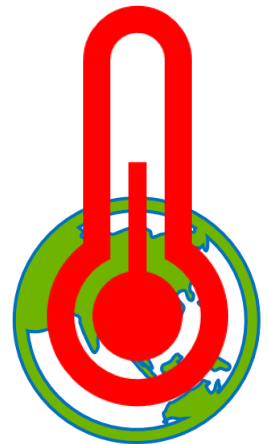


# Air Pollution: Mental Health

- **Children** have been found to be more **anxious** and **suicidal** in areas of deprivation that has worse air pollution<sup>3</sup>
- In 2015, Sandwell's estimated rate of 10.7% of 5-16 year olds with mental health disorders is the **highest** in the West Midlands region<sup>4</sup>
  - In 2019, Sandwell also had a **below average** GCSE obtainment rate<sup>5</sup>
  - Higher levels of air pollution exposure as children have been linked to below average **thinking** skills<sup>6</sup>

# Air Pollution: Climate Change

- Many of the **sources of both CO<sub>2</sub> and local air pollution** are the **same**, including vehicle exhausts, factory chimneys, energy and heating<sup>1</sup>
  - Road traffic is one of the largest sources of both greenhouse gases and air pollution
- **Burning wood** is degrading ecosystems and **undermining climate goals**, according to the European Commission's Joint Research Centre<sup>2</sup>



## List of air pollutants and greenhouse gases

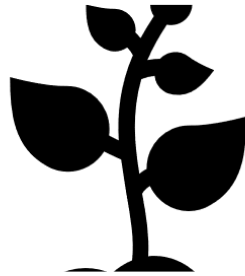
	Air pollutant	Greenhouse gas	Impacts human health
Particulate matter (PM2.5)	✓	✗	✓
Sulphur dioxide	✓	✗	✓
NO2	✓	✗	✓
Ground-level ozone	✓	✓	✓
Carbon monoxide	✓	✗	✓
Carbon dioxide	✗	✓	✗
Black carbon	✓	✓	✓
Lead	✓	✗	✓
Particulate matter (PM10)	✓	✗	✓
Methane	✓	✓	✓



# Air Pollution: The Environment



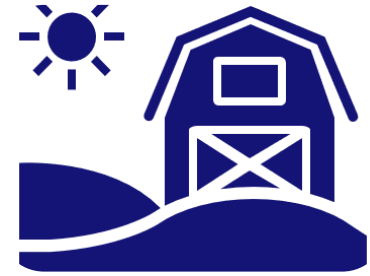
Acidic Lakes & Canals<sup>1</sup>



Depleting Nutrients in Soil



Making Climate Change Impacts Worse



Reduced Growth & Crop Yield<sup>2</sup>



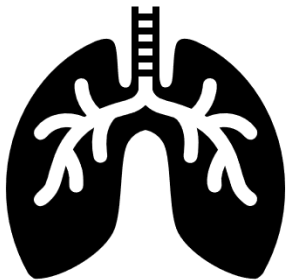
Acid Rain



Reproductive Failure & Birth Defects in Wildlife

# Air Pollution: COVID-19

- Patterns of higher rates of coronavirus **incidence** and **deaths** in areas with high levels of **air pollution**<sup>1</sup>
- A small rise in people's long-term exposure to **air pollution** is associated with an **11%** increase in **deaths** from Covid-19<sup>2</sup>
- Another recent study suggests that **15%** of all Covid-19 **deaths** around the world are attributable to **dirty air**<sup>2</sup>
- Sandwell was one of the **worst Local Authorities** affected by Covid-19<sup>3</sup>



# Sandwell: So What's the Problem?

- In 2005, monitoring found that national standards **were not being met**, so Sandwell was declared an Air Quality Management Area (AQMA)
  - Mainly due to NO<sub>2</sub> levels
  - In 2019, Sandwell **still** had 7 areas exceeding national standards
- In 2011, Sandwell had **190** hospital admissions for COPD and **244** asthma admissions **above** national average. This cost Sandwell **£640,000<sup>1</sup>**

# Sandwell: So What's the Problem?

- Of the 72 areas with **dangerous** levels of PM<sub>2.5</sub>, only Leicester and **Sandwell** were not in London<sup>2</sup>
- Sandwell has the **highest morbidity burden** in the West Midlands associated with PM air pollution
  - Sandwell has the **highest attributable deaths** percentage (6.9%) to PM outside of London

# The Cost of Air Pollution

- Healthy life expectancy in Sandwell is lower than less deprived areas, which means people spend a lot more of their working life with ill health
  - As the retirement age increases, the problem of maintaining a healthy workforce increases
- Sandwell would benefit from growth in the “Green” industry sector, for both employment purposes and the subsequent pollution improvement

# Air Quality Action Plan (AQAP)

1. Develop specific measures **with local communities** to reduce NO2 hotspots.
2. Promote **public transport, walking, cycling** and switching to zero emission vehicles.
3. Review the Council's impact on air quality including **Council fleet** and employee vehicles.
4. Support and **encourage taxi drivers** to switch to low emission vehicles.
5. Apply existing and adapt new **planning development** policies to support air quality improvements.
6. Publicity campaigns to encourage **behavioural change** around physical health and increasing use of low emission vehicles.
7. Partnership working with Birmingham City Council to minimise potential negative impact of the **Clean Air Zone**.

# Faith Centres Air Quality Project

- The Air Quality team has been successful in bidding for funding from DEFRA
- The project is working with faith centres in Sandwell to help improve local air quality via behavioural change
- 8 faith centres will receive a screen in their centre that is linked to an air quality monitor put in nearby, as well as a toolkit and questionnaire

# Air Pollution in Sandwell

- Citizen's Assembly for Air Pollution and Climate Change
- Working with schools, faith groups, communities, the private sector and climate outreach groups
- **If we managed to change behaviour so drastically in the space of a year for Covid, what could we do for air pollution and climate change?**



Any questions?