

Caerphilly County: co-produced research plan for measuring air quality

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Introduction

In October 2023, a workshop was held at Welsh ICE in Caerphilly town, bringing together people from the local area. Participants included residents and people with experience of the health effects of air pollution, active travel and co-production.

The workshop was part of the UK Energy Research Centre's Whole System Networking Fund EXPO-ENGAGE project, which seeks to involve residents in monitoring air quality within their community. The workshop aimed to lay the groundwork for a research plan concerning an air quality citizen science project in the Caerphilly County area. This summary presents an overview of the discussion and contributions from attendees.

Underpinning values

Commitment to **valuing** and **respecting** the diverse perspectives and contributions of every member of the community, ensuring **inclusivity** at every stage of the process.

Research questions/topics

Ideas for research that could be explored with an air quality citizen science project were discussed in the workshop. Schools, changing behaviour, and exploring the sources and spatial distribution of air pollution were particular areas of focus. Suggested research questions and topics included:

- Can citizen science influence people's behaviour?
 - Can air quality citizen science raise awareness of the connection between specific actions (e.g. car use) and air pollution?
 - Could this lead to changes in behaviour?
- What are the best ways of collecting air quality information that could inform policies and actions aimed at improving air quality around schools?
- Exploring the causes of air pollution:
 - What is the relationship between (different modes of) transport and air quality?
 - What are the effects of wood-burning stoves on air pollution?
 - What factors affect outdoor air pollution aside from transport and are these more easily mitigated?
 - What is the effect of the 20mph limit on air quality?
- What is the relationship between air quality and socio-economic inequalities (e.g. living in a deprived area and being from a black, Asian or ethnic minority (BAME) background)?
- Exploring the characteristics of indoor air pollution and investigating effective strategies for its mitigation and improvement.

Who should be involved?

- Citizens from different socio-economic backgrounds.
- People from relevant public bodies.
- Large local employers.
- Young people.

With an interest in air quality citizen science involving schools, participants highlighted important groups connected to schools:

- Parents, teachers and the parent-teacher association (PTA).
- Pupils.

- Residents, local businesses and community and religious leaders in nearby areas.

Facilitators – how to reach people

- Use different modes of communication.
- Build partnerships with other organisations.
- Attend local events and meetings.

To engage schools, participants discussed:

- Reaching out to schools by emailing headteachers, attending fetes, or working with schools already signed up for relevant schemes such as Active Journeys, Healthy Schools or Eco Schools.
- Carrying out air quality monitoring at the school gates at drop-off/pick-up to engage parents.

Facilitators – how to enable and maintain engagement

Ensure projects are accessible and flexible:

- Meet people where they are - hold online and in person events at a range of times and locations.
- Reimburse people for their time in an appropriate way.
- Ensure the amount and type of participation is realistic e.g. design projects to allow transient participation and have a range of options for involvement, including active and passive.
- Create and maintain a communication process that enables people to stay informed (even if only passively), using a range of methods (e.g. phone as well as email).
- Translate promotional materials/key stats on air pollution into key languages of the area.

Engagement and motivation

- Promote individual and community benefits of air quality monitoring and improvement.
- Engage workplace champions.

Similar ways of engaging schools were suggested, such as having local school champions and providing appropriate rewards and praise to children who take part.

Barriers

- Awareness of the potential health effects of air pollution resulting from participation could lead to fear/worry; projects need ways to support participants.
- People may not have capacity to engage (e.g. for socio-economic reasons).
- Some people may be hostile (e.g. as they are opposed to reducing car use).
- Improving air quality needs a top-down and bottom-up approach, but lack of trust within the council can make top-down action difficult locally.

How to present the results

- Simple language, visualisations, and translations.

What are the longer term/broader aims/considerations?

Data collected should be appropriate to support/provide evidence for policies and behaviour changes that improve air quality such as:

- Clean air zones around schools, surgeries and hospitals.
- Changing behaviours around travel.

Ideas beyond the scope of an air quality citizen science project

- Exploring facilitators and barriers to behaviour change which could improve air quality, such as for using active travel, electric cars, or home renewable energy or heat pumps.
- Identifying and learning from past changes in society to shift from “car culture”.
- Exploring the lived experiences of travelling in the area using different modes of transport.