UNIVERSITY OF BIRMINGHAM

WEST MIDLANDS AIR QUALITY IMPROVEMENT PROGRAMME

WM-Air – the West Midlands Air Quality Improvement Programme – is a five-year project to apply environmental science research expertise to improve air quality in the West Midlands, delivering health, economic and environmental benefits. The project is led by the University of Birmingham, in collaboration with over 20 local partners providing direct and in-kind input, and is supported by a £5 million award from the Natural Environment Research Council (NERC).

Air pollution in the West Midlands affects some 2.8 million people, reducing average life expectancy by up to six months, and is responsible for economic costs estimated at up to £860 million per year. Air quality is therefore a key priority for local and regional government, and increasingly the general public. The formation of the West Midlands Combined Authority, the Second Devolution Deal for the West Midlands, existing Local Authority, NHS and private sector actions and priorities give rise to a unique opportunity to translate research science expertise to help deliver cleaner air for the region.

The University of Birmingham group has critical mass and internationally leading research expertise in air pollution science, its health and economic impacts, and the development of measures to support clean air, alongside a history of links with regional partners. We have developed the WM-Air project through a co-design process alongside regional stakeholders including the WMCA, local authorities/the city councils, private companies, industry bodies and third sector organisations. The project is funded by NERC, through their Regional Impact of Science of the Environment (RISE) scheme, which supports the application of existing environmental science to deliver regional impact – in societal, economic and policy terms. WM-Air will apply the latest scientific understanding in support of cleaner air benefiting the health, economy and environment of the West Midlands.

The project comprises three broad themes, which aim to improve understanding of the region's air pollution challenges, to provide new capability to support clean air measures and policy focussed upon the region, and to support the application of these to specific policy scenarios, questions and challenges.

'POOR AIR QUALITY IS THE LARGEST ENVIRONMENTAL RISK TO PUBLIC HEALTH IN THE UK' (DEFRA, 2017).

SITUATIONAL AWARENESS

Situational Awareness (understanding of air pollution levels and sources). WM-Air will provide new measurements of the levels of air pollutants (augmenting existing monitoring and addressing gaps in knowledge), and quantify pollution sources by sector, including measurement of real-world on-road vehicle emissions.

PREDICTIVE CAPABILITY

Predictive Capability to develop and evaluate air quality policy options and support development in achieving cleaner air. WM-Air will provide new capacity to predict (model) future air quality levels, in comparison with business as usual predictions, and how these may respond to potential policy options. The project will evaluate the air-quality-driven health and economic benefits and impacts of such predictions, on a local level within the region. The project will provide guidance over the use of green infrastructure (urban vegetation) to improve air quality, to maximise the benefits achievable.

APPLICATION

Application of the resulting capability to specific policy scenarios and case studies, for example around major interventions such as Clean Air Zones, infrastructure developments (eg, HS2, Commonwealth Games) and other developments on scales from regional to local. WM-Air will resource a cohort of Impact Fellows, staff with the expertise to apply the new insight and capacity, physically embedded within partner organisations to ensure the relevance and applicability of their support.

WM-Air will also help to support existing policy actions in the air quality area, and build the region's air quality expertise base. The project addresses the UK Industrial Strategy *Grand Challenge of Clean Growth*, which commits to creating a future where our cities benefit from cleaner air, and the *Infrastructure Foundation of Productivity*, which identifies the significant negative impact air pollution has on public health, the economy and the environment; however **the key beneficiaries of WM-Air will be the population of the region, through contributions to reductions in air pollution related illness, and associated increases in life expectancy and quality of life.**

WM-AIR PARTNERS

WM-Air is led by Professor William Bloss from the University of Birmingham, with founding partners including the West Midlands Combined Authority, Transport for West Midlands, Birmingham and Coventry City Councils, Walsall, Dudley and other regional local authorities through the West Midlands Environmental Protection Group, the Birmingham and Solihull NHS Sustainability Transformation Partnership, HS2, Network Rail, Rail Freight Group, National Express West Midlands, Arup, Amey, AEA Ricardo, Temple Group, Sustrans West Midlands, NHS Sustainable Development Unit, Forest Research, Natural England, Calthorpe Estates, Midlands Trees and Design Action Group, Amazon Web Services, CERC, HEAT Technologies, The Floow and the Birmingham & Solihull Local Enterprise Partnership. Further partners are welcome and mechanisms exist for them to join the project

AIR POLLUTION RESEARCH AT THE UNIVERSITY OF BIRMINGHAM

Over 7 million people die each year from air pollution across the world, with 34,000 people in the UK dying early as a result, and 91% of the world's population lives in places where outdoor air quality exceeds WHO guideline limits. Researchers at the University of Birmingham are working to identify the different causes and effects of air pollution, and applying their learning to public policy globally to help develop Clean Air solutions in areas such as India, China, and East Africa, as well as in cities and regions across the UK, including the West Midlands. This work spans Environmental Science, Health Studies, Social and Economic impacts and Policy and Planning implications.

We are working to understand how to save lives at risk from air pollution. See: www.birmingham.ac.uk/research/heroes/air-pollution.aspx

Find out more about our Environmental Science research at: www.birmingham.ac.uk/university/colleges/les/research/environmental-sciences-research.aspx

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