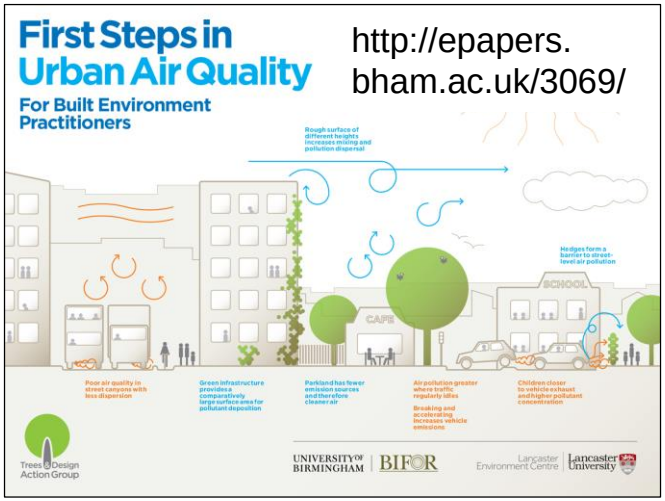
The role of strategic green infrastructure in reducing exposure to road transport pollution for improved public health

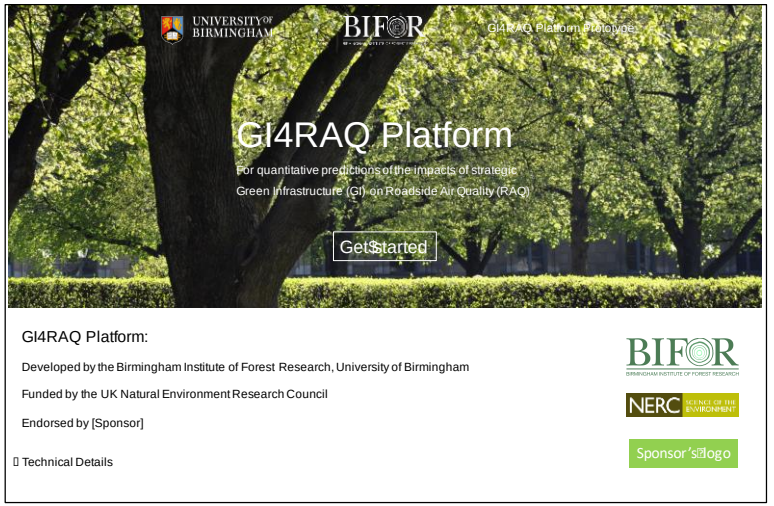
James Levine and Rob MacKenzie

j.g.levine@bham.ac.uk

NERC SCIENCE OF THE ENVIRONMENT

Developing a quantitative ‘GI4RAQ’ platform

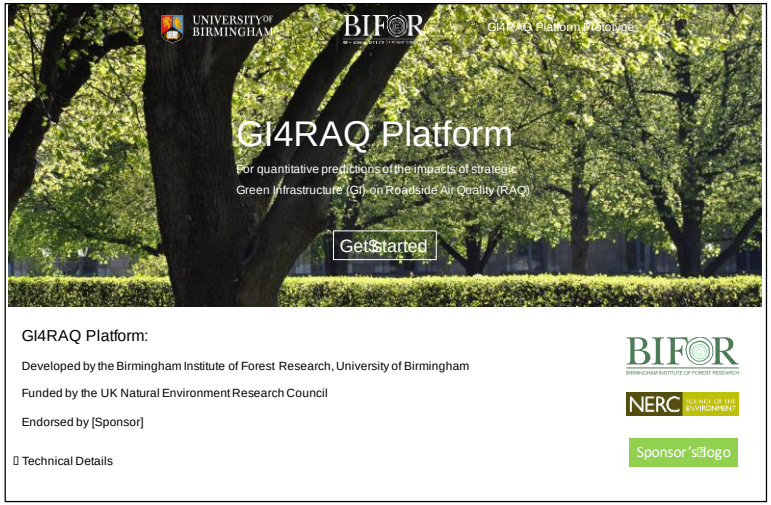




‘GI4RAQ’ = Green Infrastructure for Roadside Air Quality

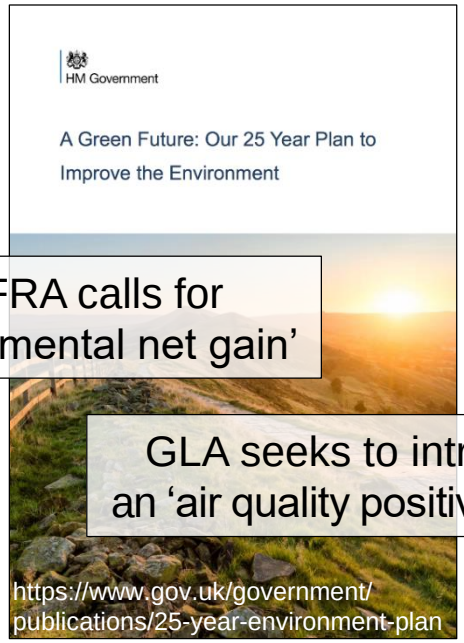
Quantitative prediction of benefits/disbenefits at planning, building on the qualitative but robust steers of First Steps

Developing a quantitative ‘GI4RAQ’ platform



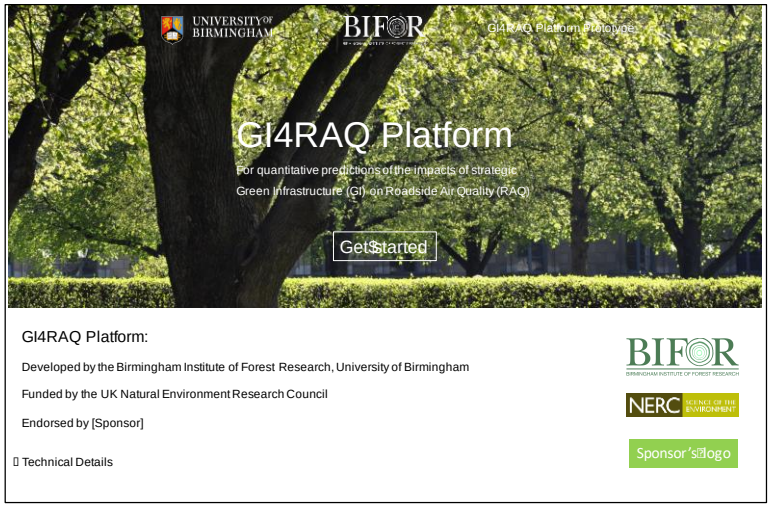
Aimed at informing ‘pre-app’ discussions, we are co-designing the platform with environmental consultants & local authority officers

Unblocking a UK planning policy impasse



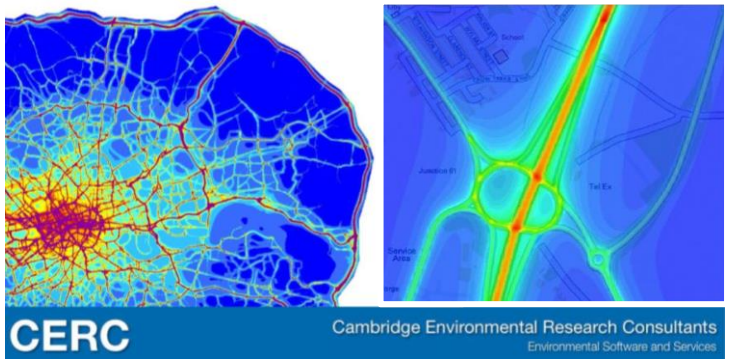
DEFRA calls for ‘environmental net gain’

GLA seeks to introduce an ‘air quality positive’ policy



Local authorities can’t implement a new policy until they have a means of assessing compliance BUT commercial developers are reluctant to develop one until a policy is in place securing a return on their investment

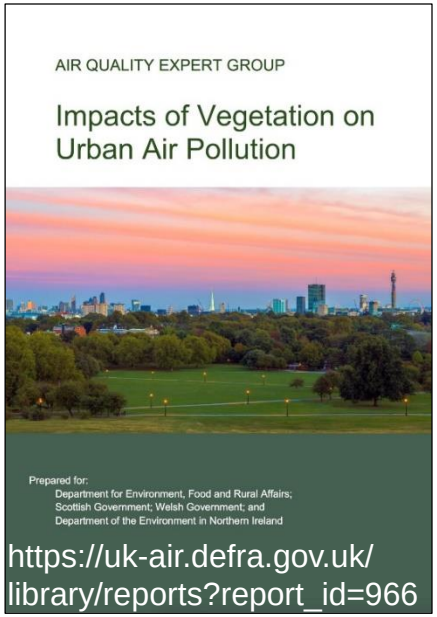
Unblocking a UK planning policy impasse



CERC & Ricardo are not only environmental consultancies, but also developers of commercial platforms widely used by local authorities

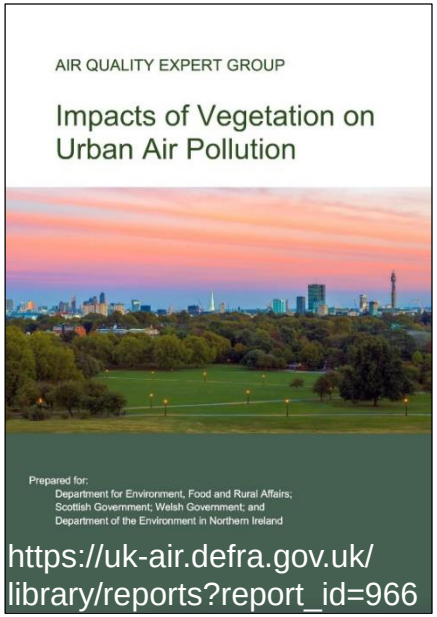
To stimulate further innovation (in all sectors), the GI4RAQ platform will be open-source; and to maximise use, it will be freely available

Including dispersion – not just deposition



At the scale of realistic urban planting schemes, deposition to vegetation typically removes just a few percent of PM and NO_2

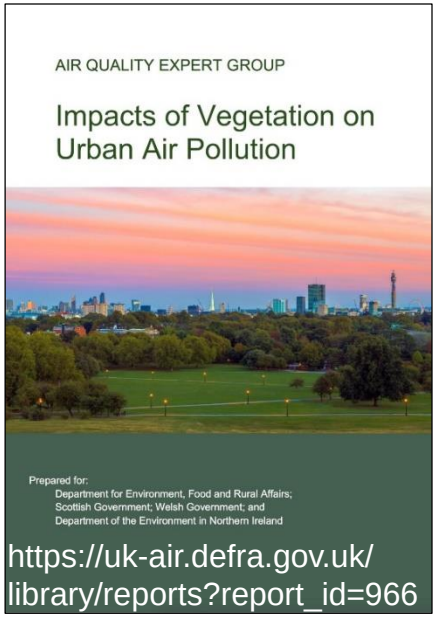
Including dispersion – not just deposition



https://uk-air.defra.gov.uk/library/reports?report_id=966

..and vegetation makes a relatively small contribution to total urban emissions of volatile organic compounds (VOCs)

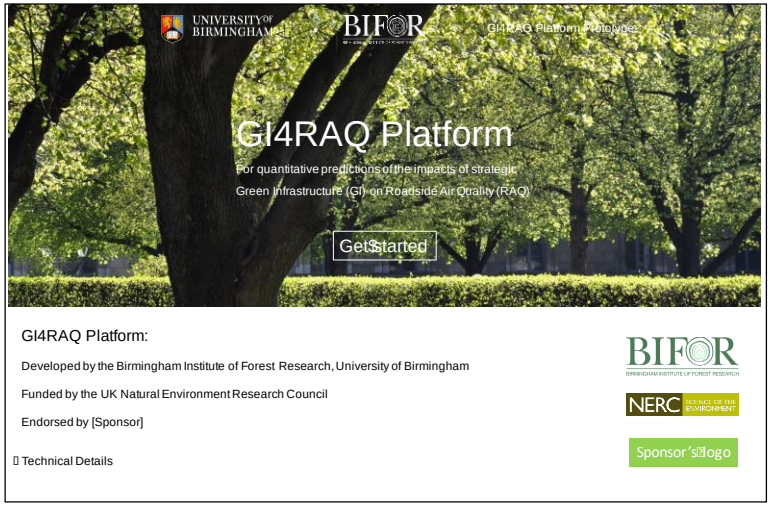
Including dispersion – not just deposition



https://uk-air.defra.gov.uk/library/reports?report_id=966

Dispersion has much more leverage on roadside air quality: vegetation barriers can halve concentrations in their immediate wake

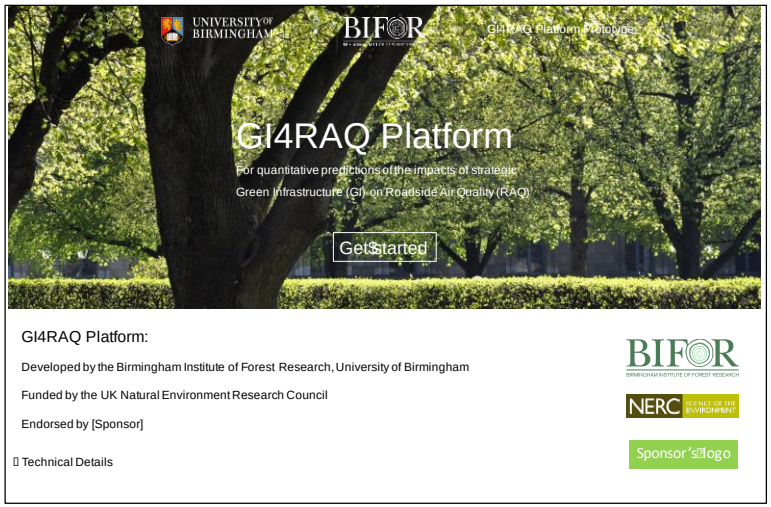
Current work with Transport for London



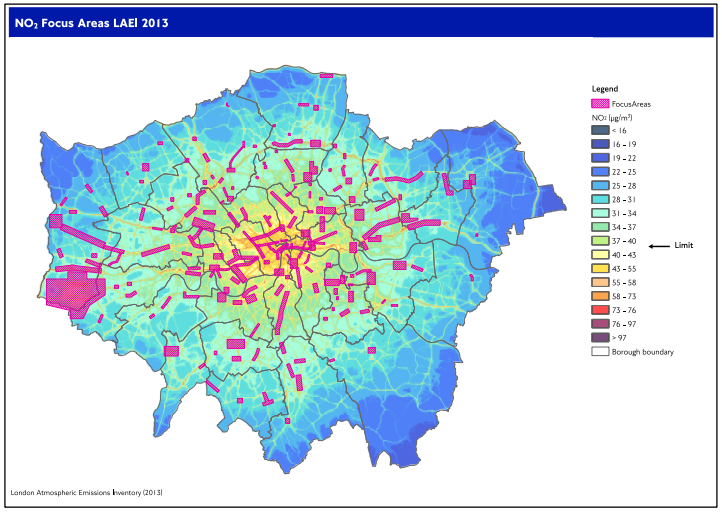
+

Six months secondment to: build evidence-based understanding of GI4RAQ; and incorporate this into their 'Healthy Streets' approach

Current work with Transport for London



+



TfL are focussing efforts to improve air quality where they are most beneficial for population-wide public health & health equality

Health Impact = Concentrations + Exposure + Vulnerability

Conclusions

[The best way to improve air quality is to reduce *emissions*; and green infrastructure is not ‘always good for air quality’]

Strategic green infrastructure can much reduce *exposure* to road transport pollution and improve health outcomes

We are developing a quantitative GI4RAQ platform, building on ‘First Steps in Urban Air Quality’ - and new GLA guidance

Green infrastructure is resolutely good for climate resilience (SuDS & UHI mitigation), wellbeing, biodiversity and business