**NIAM activity on PM2.5**

As one of our first activities in NIAM we would like to look at how countries are addressing PM2.5 pollution, including how they model it, how they assess the health impacts, and how this feeds into policy. As a first step we are gathering information on current work in this area towards organisation of a virtual meeting in November.

If you are interested in participating please register your interest with an e.mail to [h.apsimon@imperial.ac.uk](mailto:h.apsimon@imperial.ac.uk). And if you are already working in this area we shall be grateful if you can also send a response to the questions below which will help us in planning a focus on this topic.

1. **Modelling PM2.5**

If you model PM2.5 concentrations in your country:-

1. Do you use GAINS, or independent modelling- in which case please give brief details.

Yes we manage and run a national instance of the GAINS model. For the concentration aspects we have most recently linked with Nilu. I believe the ambient unit in the EPA have also done some work connected to Fairmode with one of those tools.

1. What distance scales do you cover- e.g. European, national, city: and with what spatial and temporal resolution?

National with GAINS – however, we have also conducted finer scale work with Nilu recently. I will attach that CONAIR report for information.

1. What components of PM2.5 do you include- e.g. primary PM2.5, secondary inorganic aerosol, secondary organic aerosol, natural dust etc?

Mainly primary PM2.5 – though in Ireland there is of course consideration of organic aerosol, and some interest in the relevance of secondary PM formation.

1. What emissions data do you use e.g. a national inventory. Are there particular sources you think are uncertain, missing, or would like to discuss?

National inventory. Given the relevance of the built environment sector I would say the heating technology information (i.e. what stoves, boilers) and the prevalence of non-traded fuels are a major source of uncertainty in this context.

1. Have you undertaken validation of your model against measurements, and if so what measurements do you have available to use

Limited work on residential to my knowledge. However, our recent work with Nilu on CONAIR did try to reconcile modelling with measurements obviously. The monitoring network is set to grow a reasonable amount over the coming years and so this should help.

1. What do you think are the most important uncertainties or aspects of PM2.5 modelling that you would like to discuss.

I would say residential combustion – knowledge of technologies being used and the level of non-traded fuel use.

1. **Assessing health impacts**

The health impacts of PM2.5 are a major driver to reduce air pollution.

1. We are interested in how you use data on concentrations of PM2.5, either modelled or measured or both, to assess human exposure and health impacts?

We had a methodology on this described in our guidebook on the same topic. Will attach. There are more in-depth approaches that can be used with finer scale data, but the ambition there was to ensure ready access to a methodology that could allow air pollution to receive an appropriate (right scale) weight in policy decision making processes.

1. If you undertake such assessments of health impacts of PM2.5, do you follow WHO guidance and base this on total mass of PM2.5, or do you focus on particular components and/or differentiate relative toxicity?

Total mass. Limited source apportionment work but may be interesting into the future for city scale work.

1. What health impacts do you consider e.g. mortality, asthma etc; and what risk coefficients do you use?

See guidebook.

1. Do you assess the economic costs of health impacts, and if so what do you include e.g. life years lost, hospital/medical costs, loss in productivity/working days lost etc.?

See guidebook.

1. **Policy applications**

We are also interested in the application of your work, particularly as input to development of policy.

1. How do you relate your work to environmental goals e.g. compliance with regulations, or comparison with WHO guidelines?

Generally we discuss both as Ireland is reasonably comfortable on NECD regs at least. Localised effects may be revealed more as the monitoring network is expanded in the coming years. The WHO guidelines are used to maintain pressure on action on the basis of ‘no safe levels’ of air pollution.

1. **Publications**

Have you published your work, in which case please give references is available?

I will attach some recent publications in this context.

1. **Questions**

Are there particular aspects of questions that you would like NIAM to address on PM2.5, including at the virtual meetings proposed for November.

Consideration of the just transition. In particular consideration of how air pollution maps with deprivation in a European fine scale context. Similar to the US work published in this area. We have a good deal of work now on the just transition aspects of environmental policy and believe there is a strong angle here for some collaborative work in the EU.

Please e.mail your response to Helen ApSimon: h.apsimon@imperial.ac.uk