

Atmosphere and Local Environment

Policy on Eutrophying and Acidifying Atmospheric Pollutants

Samantha Lawrence

UKEAP Local Site Operators and Stakeholder Meeting

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A Great Big Thank You



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- ▶ Thank you to all the LSOs who help make the UKEAP network function
- ▶ Defra appreciates your contribution
- ▶ Defra are looking at ways to improve our health and safety procedures to ensure that LSOs are able to work in the safest possible environment and have the training required to undertake their role in gathering evidence

Policy is mainly driven by EU legislation but with international and local components

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International

- WHO - Health standards;
- Convention on Long range Trans-boundary air pollution.

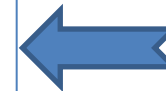


- Sets international standards and agreements on limits and emissions
- Feeds into the European Directives



European

- Industrial Emissions;
- Emissions Ceilings;
- Ambient Air Quality
- Euro standards



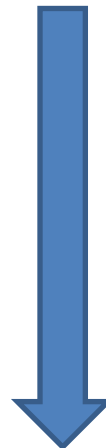
- Directive requirements transposed into domestic law.
- Set standards to achieve for ambient air quality and emissions reductions.

United Kingdom

- Environment Act;
- Clean Air Act;
- Air Quality Strategy;
- National controls on air pollution



- National Air Quality objectives; related to EU limit values.

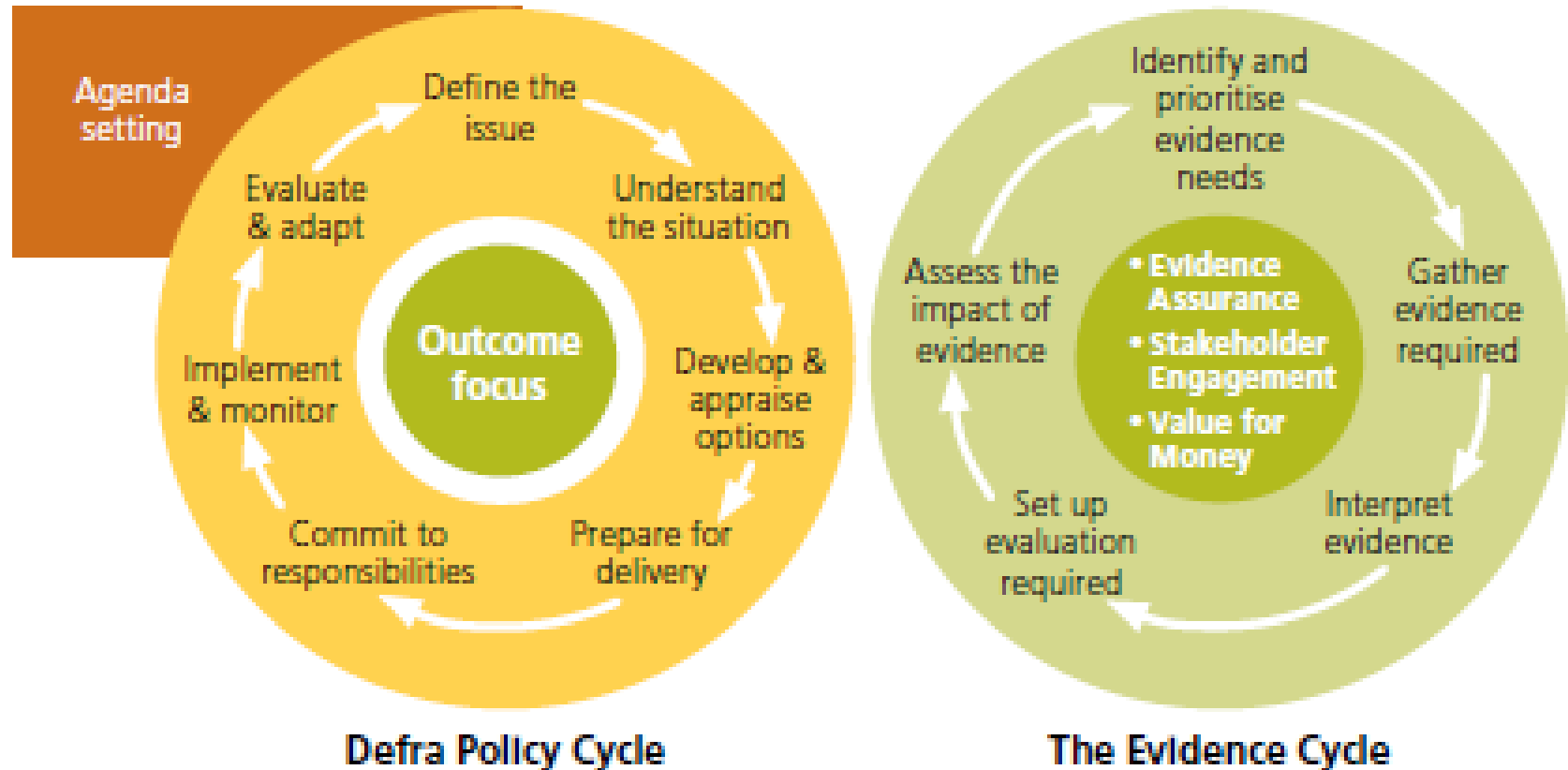


Regulation and Compliance

- National Measures to reduce pollution;
- Environmental Permitting;
- Industrial Pollution Prevention and Control;
- Local Pollution Control;
- Local Air Quality Management.



Evidence in Defra: The Evidence & Policy Cycles



- ▶ Meets need identified in Defra EIS to develop a clearer link between Defra's policy objectives and the evidence activities we fund.
- ▶ Developed by each Defra policy area funding evidence
- ▶ Each Evidence Plan:
 - ▷ outlines the rationale for the policy activity
 - ▷ summarises the past, present and future evidence work
 - ▷ considers the internal and external capabilities needed
- ▶ The Evidence Plan for the Atmosphere and Local Environment Programme can be found at:
<http://www.defra.gov.uk/corporate/evidence/science/strategy-evidence-plans/>

Evidence comes from many areas

▶ Defra has its own well developed evidence programme including:

- ▷ Emissions
- ▷ Monitoring
- ▷ Modelling
- ▷ Data synthesis and advice

Defra only directly funds work that feeds into policy

- ▶ Local authorities
- ▶ Research Councils
- ▶ Other government departments
- ▶ International Programmes, e.g. EU FP7, UNECE and other countries



The air quality evidence programme



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- ▶ Over 40 individual contracts, outputs are grouped into 6 main categories :
 - ▷ Meeting requirements of national, EU and international legislation
 - ▷ 'State of the Environment' evaluations (mainly reporting to CLRTAP)
 - ▷ Policy analysis support
 - ▷ Furthering understanding/method development
 - ▷ Short term reactive work
 - ▷ Direct policy implementation/evaluation

UKEAP Overview

- ▶ Plays a vital role in ‘State of the Environment’ evaluations - determining pollutant deposition over the UK
- ▶ Combined two of Defra’s networks
 - Acid Deposition Monitoring Network (ADMN)
 - National Ammonia Monitoring Network (NAMN)
- ▶ Comprises four monitoring components:
 - ▷ Precipitation (Precip-Net)
 - ▷ Nitrogen dioxide (NO₂-Net)
 - ▷ Ammonia and Ammonium (NAMN)
 - ▷ Acid gases and Aerosols (AGA-Net)

Aims of the UKEAP Network



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- ▶ To monitor the concentrations of eutrophying and acidifying species in air and precipitation in rural areas of the UK with sufficient spatial and temporal resolution to allow:
 - the evaluation of policy measures to reduce concentration and deposition
 - risks to ecosystems and exceedences of critical loads to be assessed
 - estimation of secondary aerosol

What is the data used for?

To assess the effects of pollutants on ecosystems

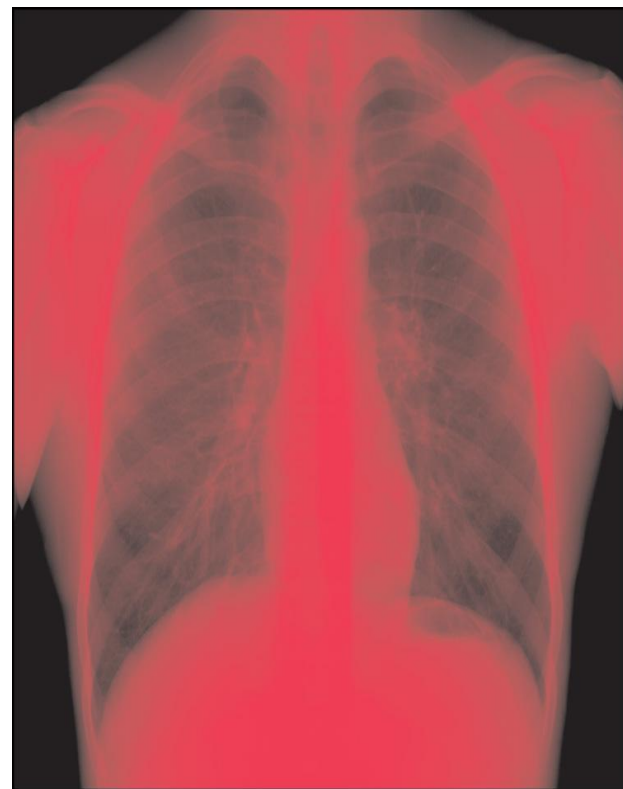
- ▶ Currently 54% of all habitat areas in the UK exceed the Critical Load for acidity and 71% of all sensitive habitat areas exceed the critical load for nutrient nitrogen

Outcomes of policies and abatement strategies

- ▶ Long term monitoring to identify trends in pollutant concentrations and deposition
- ▶ UKEAP data feeds into atmospheric dispersion models to allow the calculation of the effect of future policies

Why is the data so important?

- PM contribute to increased lung and cardiovascular conditions. Linked to other “inflammatory response” conditions
- Impacts attributed to PM_{2.5} alone are estimated to have an effect equivalent to 29,000 deaths each year or a reduction in life expectancy of 6 months averaged across the whole population.
- Monetised costs of PM_{2.5} are estimated at £16 billion annually (range £9 – 19 billion, 2008 levels).



Convention on Long-range Transboundary Air Pollution (CLRTAP)

- ▶ Established in 1979
- ▶ Aim: to limit and, as far as possible, gradually reduce and prevent air pollution including long-range transboundary air pollution
- ▶ Extended by 8 Protocols including the EMEP and Gothenburg Protocols

Policy background

- ▶ Gothenburg Protocol
- ▶ Aims to reduce harmful effects due to air pollution by reaching environmental objectives to protect human health and the environment
- ▶ Sets binding emission ceilings for the four pollutants – SO₂, NO_x, VOCs and NH₃ - to be attained by 2010
- ▶ Currently being revised and expected to set new ceilings for 2020 and add Primary PM_{2.5}
- ▶ National Emissions Ceiling Directive (NECD)
- ▶ Similar to Gothenburg Protocol for EU MS

UKEAP Policy Links



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- ▶ Vital part of the UK's input to EMEP a key aim of which is to monitor atmospheric concentrations and deposition rates to:
 - ▷ provide observational and modelling data on air pollutant concentrations, deposition rates, emissions and transboundary fluxes on the regional scale;
 - ▷ identify the sources of the pollution concentrations and depositions and to assess the effects of changes in emissions;
 - ▷ improve our understanding of chemical and physical processes relevant to assessing the effects of air pollutants on ecosystems and human health;

UKEAP: The next chapter

- ▶ New contract starts Jan 2012
- ▶ Contract will merge UKEAP & EMEP
Supersites monitoring
- ▶ Continue to promote the dissemination of
the network measurements
- ▶ Work with the atmospheric modelling
community

Review of Research into Effects of Air Pollution on Ecosystems and Crops



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- ▶ NERC Policy fellowship analysed success of past research and gave recommendations including a framework for planning future research
- ▶ Consultation with policy stakeholders has been carried out on a set of 'policy questions' which will form the basis for a re-structured research programme
- ▶ A gap analysis will be carried out in October assessing where more research is needed to answer the policy questions
- ▶ Organisation of new programme of research to commence in November

- ▶ Thank you for your attention
- ▶ Samantha.Lawrence@defra.gis.gov.uk

0207 2386622