

Air pollution

NERC research improves air quality

Air pollution is a serious problem for the UK. It causes an average of 29,000 premature deaths pa, reduces agricultural yields and damages buildings, woodlands and other ecosystems. From 1990, NERC research has influenced policies which have reduced major air pollutants in the UK, generating total benefits worth at least £31bn and perhaps as much as £82bn. This is the conclusion of a 2015 NERC-commissioned analysis by Deloitte.

NERC research fed into the first international treaty on acid rain, the 1979 Convention on Long-range Transboundary Air Pollution (CLRTAP), which obliges countries to cut emissions of sulphur oxides, nitrogen oxides, volatile organic compounds, ammonia, heavy metals and persistent organic pollutants. From 1983 NERC scientists pioneered the first truly international project on acid rain, leading the UK to begin a £6bn programme to cut air pollution.

Investment

NERC invests around £3m a year in air-pollution research. This directly supports international agreements, strengthening the UK's negotiating position.

Impact

Deloitte's analysis suggests that NERC science:

- Influenced pollution-reduction policies that created £31bn-£82bn of UK economic benefits between 1990 and 2013 – equivalent to at least £1.2bn a year.
- Provided the evidence behind a 10-year programme to reduce sulphur dioxide and nitrogen oxides,

starting in 1990 and worth £6bn (£11.5bn in 2015 prices). This led to a fall in these pollutants worth an estimated £17bn-£40bn – a net benefit of £6bn-£29bn.

The Air Pollution Information System (APIS) lets local government assess environmental impacts of proposed developments. This helps avoid over-cautious regulation while protecting the environment. APIS was used to ensure the £25m London Ashford Airport expansion could go ahead without damaging the Dungeness Special Area of Conservation.

The Clean Air for London (ClearLo) project helps reduce human exposure to particulate matter (PM) pollution. ClearLo data was incorporated into the London Air Quality Network website, which offers a mobile app used by over 20,000 Londoners to view daily air-quality reports and avoid high-pollution areas. Defra estimates PM pollution costs the UK £20bn pa in health damage.

NERC investment helps individuals manage their exposure to air pollution. It supports the National Pollen and Aerobiology Research Unit's daily pollen forecasts. These are used by the Met Office, GlaxoSmithKline and media such as the Daily Telegraph. They help sufferers manage their symptoms and avoid absences from work. Hay fever is estimated to cause 4m sick days pa, incurring annual productivity losses and health damage worth £970m.

UK air pollutant emissions 1980-2013

