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## Atmospheric Issues

March 2001

Volume 7, Issue 1

### AIR QUALITY

#### **2000 URBAN AIR QUALITY BEST YET**

The quality of urban air during 2000 was the best yet on record, according to figures released by the UK Environment Minister, Michael Meacher. 17 days during 2000 were categorised as moderate or high pollution compared to 30 in 1999 and 23 in 1998. Rural air quality was also better during 2000 than for the previous two years.

The quality of the air is summarised by creating an air quality headline indicator, based on the number of days certain pollutants exceed the National Air Quality Standards. These pollutants are particulates (PM<sub>10</sub>), ozone, sulphur dioxide, nitrogen dioxide and carbon monoxide. Ozone is usually the pollutant which causes the most exceedences of Air Quality Standards in both urban and rural areas.

Source: DETR Press Release, January 14th, 2001.

#### **QUALITY OF LIFE SURVEY INCLUDES AIR QUALITY**

A national survey will be conducted during February / March 2001 to find out how the public perceive the government's headline indicators of sustainable development or 'Quality of Life Barometer'.

There are 15 headline indicators which include economic indicators such as employment, social indicators such as health, education and crime and

environmental indicators including air quality, climate change and water quality.

Sources: DETR Press Release, January 25th, 2001;  
<http://www.sustainable-development.gov.uk/>

#### **NEW AQMA WEBSITE**

A new website has been created to identify the local authorities that have declared air quality management areas (AQMAs). To date, 19 authorities have declared AQMAs. On the website these are shown on a map of the UK, highlighting a concentration of authorities centred on the London area.

The website can be found at:  
[www.aeat.co.uk/netcen/airqual/welcome.html](http://www.aeat.co.uk/netcen/airqual/welcome.html) in the Air Quality Management Areas.

Source: Air Quality Management, February 2001.

#### **HYDROGEN BUSES FOR LONDON?**

The Institute for Public Policy Research (IPPR) has called on Ken Livingston, London Mayor, to introduce hydrogen buses across London to reduce deaths from traffic pollution which now exceed the number of deaths by road accidents (*see Atmospheric Issues, January 2001*).

Hamburg and Berlin have already introduced hydrogen buses into their fleets whilst Reykjavic in Iceland is attempting to convert all its energy use to hydrogen power. It has outlined a gradual transition to hydrogen for the transport sector. Phase

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one consists of a \$8 million (£5.6 million) project to demonstrate hydrogen fuel cells in 100 public transport buses, with three such buses in operation by 2002. The second phase will be to convert the entire bus fleet at a cost of \$50 million (£35 million), followed by the conversion of private passenger cars in phase three.

Source:

<http://www.e-volve.org.uk/articles.asp?ID=962>

#### **M4 BUS LANE IMPROVES AIR QUALITY**

A report by TRL suggests that air quality improvements have been achieved since the new bus lane was implemented on the M4 motorway along with a 50-mph speed limit a year ago. The report suggests that carbon dioxide emissions have been reduced by around 16% during off peak hours and that the noise level has been reduced by 1 decibel.

Source: [www.highways.gov.uk](http://www.highways.gov.uk)

#### **NEW TECHNOLOGY COULD HALVE VEHICLE EMISSIONS**

Engineers from The University of Texas (UT) at the Austin College of Engineering and Ford Motor Company have patented a technology designed to reduce vehicle emissions by 50% or more. It is called the on-board distillation system and could potentially reduce all emissions from cars--and, in particular, hydrocarbons--by 80%.

The procedure involves separating the molecules in the fuel that are easy to evaporate (those that are highly volatile) from all the other molecules. Then the highly volatile molecules are stored separately and used to start the car. The system will be trialled on a Ford 2001 Lincoln Navigator in UT Austin's mechanical engineering laboratories, where it will be refined until ready for mass production

Source:

<http://www.e-volve.org.uk/articles.asp?ID=946>

#### **LARGER LORRIES, LESS POLLUTION**

The UK Transport Minister Keith Hill has recently announced that 44 tonne lorries will be allowed on British roads from 1 February 2001. This should reduce the number of lorry journeys made on our roads along with vehicle pollution.

A report last year by the Commission for Integrated Transport (CfIT) recommended the introduction of 44 tonne, six axle lorries, citing clear environmental benefits. Their introduction could lead to an annual saving of up to 100 million lorry kilometres, equivalent to 1,000 fewer lorries on the road with considerable reductions in CO<sub>2</sub> and other emissions.

The Transport Minister also qualified this decision by stating that the new lorries will be heavier but not larger and will have less polluting Euro II standard engines. The new lorries will be no noisier and will have to meet the same stopping distance requirements as lighter vehicles. The 44 tonne lorries will also cause less wear to roads and bridges than the 40 tonne, five axle lorries permitted now because they have an extra axle and a lower maximum axle weight.

Source: *DETR Press Release, February 1<sup>st</sup>, 2001;*

<http://www.e-volve.org.uk/articles.asp?ID=998>

#### **CLIMATE CHANGE**

##### **LATEST IPCC CLIMATE PROJECTIONS**

In January 2001, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a draft report of the Third Assessment Report of Working Group I that builds upon past assessments and incorporates new results from the past five years of research on climate change. In the report the IPCC confirms that Earth's average surface temperature could rise by almost 6°C by 2100 - a rise unprecedented in the past 10,000 years. At the same time sea levels could rise by almost a metre. Whilst the IPCC recognise that natural

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factors alone can influence the global climate, the warming over the past 100 years is very unlikely to be due to internal variability alone, but to predominantly man-made greenhouse gas pollution.

According to the report, the 1990s was the warmest decade for 1,000 years. Temperatures rose by an average of 0.6°C during the last century, with an increase in floods and droughts. Carbon dioxide levels in the atmosphere have risen by 31% since the beginning of the Industrial Revolution, largely as a result of burning fossil fuels.

The draft of the Third Assessment Report of the IPCC WGI can be downloaded from: <http://www.ipcc.ch>

Sources: Intergovernmental Panel on Climate Change Shanghai Draft WGI Third Assessment Report; [Guardian newspaper online](#), 23rd January 2001

### **HEALTH EFFECTS OF CLIMATE CHANGE**

In February 2001 the UK Department of Health published the first official report into the possible health effects of climate change. The report identifies environmental factors that could affect the health of the population and will assist the Government's long term planning on issues of climate change and health in the UK. The report was produced by the Expert Group on Climate Change and Health, including experts from the meteorological and climate changes fields, as well as from physiology, public health, epidemiology and microbiology. The Health Effects of Climate Change report is being published as a scientific review for comment.

While accepting the difficulties of predicting the impact of climate change on the health of the UK population, the report concludes that climate change will have a significant effect on health in the UK. However, not all the effects will be negative. The report suggests that the National Health Service should cope well with the impact of climate change, given adequate planning and resources, and concludes that early action

may mitigate many of the possible consequential health effects of change.

Some of the key predictions include:

- Cold-related winter deaths are likely to decrease substantially, by perhaps 20,000 per annum;
- Heat-related summer deaths are likely to increase, by around 2,800 cases per annum;
- Cases of food poisoning are likely to increase significantly, by perhaps 10,000 cases per annum;
- Insect-borne diseases may present local problems, but the increase in their overall impact is likely to be small;
- Water-borne diseases may increase, but the overall impact is likely to be small;
- The risk from disasters caused by severe winter gales and coastal flooding is likely to increase;
- In general, the effects of air pollutants on health are likely to decline but the effects of ozone during the summer are likely to increase: several thousand extra deaths and a similar number of hospital admissions may occur each year;
- Cases of skin cancer are likely to increase by up to 5,000 cases per year and cataracts by 2,000 cases per year;
- Measures taken to reduce the rate of climate change by reducing greenhouse gas emissions could produce secondary beneficial effects on health.

Sources: [The Times newspaper online](#), 10th February 2001; UK Department of Health Press Release, 9th February 2001

### **KYOTO CLIMATE TARGETS BEYOND REACH OF THE UK?**

Although the Government has committed itself to reducing emissions of carbon dioxide, the main greenhouse gas, to 20% below their 1990 levels by 2010, the UK is likely to miss its internationally agreed targets for reducing the greenhouse gases which cause global warming, according to a report published by Cambridge

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Econometrics, the independent energy analysts. Instead, carbon dioxide emissions will increase over the next decade and in 2010 will be only 6.5% lower than in 1990.

The report singles out road users and households as the main culprits. Thanks to the so-called dash for gas during the 1990s, emissions from power stations are falling and in 2010 are expected to be 23% lower than in 1990, while more efficient use of energy will allow industry to cut emissions by more than 15%. But households and car owners will have to become more energy efficient as well if the UK is to meet the targets it agreed at the Kyoto climate change talks in 1997.

UN scientists believe that the world's average temperature will rise by 6°C by 2100 (see "Latest IPCC Climate Projections"), even after implementation of the Kyoto Protocol targets, which many countries have yet to sign up to.

Source: [Guardian newspaper online](#), 5th February 2001

### **MELTING ICECAPS**

According to the IPCC Climate Change Report released in January 2001 (see latest IPCC Climate Projections), climate change could have dramatic consequences for the Arctic this century. Scientists have not ruled out the possibility that the entire Arctic could become ice-free. If the amount of atmospheric carbon dioxide reaches twice its pre-industrial levels, the report says, then the summer sea ice in the Arctic could shrink by up to 60%. This could happen by as early as 2050, nearer to us now than the end of the Second World War.

The extent of the Arctic sea ice has declined by almost a third in the past 130 years, and the report says it is possible that the Arctic could lose all its ice. Considerable ice sheet melting is also expected to occur on Greenland. Additionally, there is concern about the permafrost, the layer of

permanently frozen soil which serves as the solid foundation for buildings and other structures throughout the Arctic. Melting permafrost in Siberia has already weakened buildings in several cities. Furthermore, the Arctic permafrost stores a lot of carbon dioxide and methane, which if released through melting, will cause a positive feedback adding to the warming process.

Source: [BBC News online](#), 19<sup>th</sup> February 2001, *Global warming 'could melt Arctic'*

### **SUSTAINABLE DEVELOPMENT**

#### ***HOW SUSTAINABLE IS YOUR COUNTRY?***

A new Environmental Sustainability Index (ESI), developed by the Earth Institute's Center for International for Earth Science Information Network (CIESIN) with collaborators from Yale University and the World Economic Forum, was released in January 2001.

The Index ranks countries on a scale from 0 to 100 according to performance in 22 factors associated with environmental sustainability, including urban air quality, public health and environmental regulation. Top of the list of 122 countries ranked by ESI are Finland, Norway and Canada. A country's ranking offers an overall indicator of a nation's ability to sustain human life through food resources and a safe environment, and to deal with both national and international environmental challenges.

The ESI has been criticised, however, because its ratings fail adequately to reflect a country's ecological footprint. The United States, for example, scores well according to the ESI and yet consumes over a quarter of the world's resources for only 6% of the global population. The 2001 Environmental Sustainability Index Report is available at: <http://www.ciesin.columbia.edu/indicators/ESI/>

Source: Global Environmental Change Report, 9 February 2001.