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## ***Atmospheric Issues***

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### **AIR QUALITY**

#### ***NEW NAME FOR DETR***

The re-elected Labour government have announced a change to the Department of the Environment, Transport and the Regions. From June 9<sup>th</sup>, the DETR was split into two new departments:

- The Department for Transport, Local Government and Regions (DTLR), and;
- The Department for the Environment, Food and Rural Affairs (DEFRA).

Rt. Hon Stephen Byers MP is to head up the DTLR, whilst the Rt. Hon Margaret Beckett has been appointed head of DEFRA. Michael Meacher retains his post as Environment Minister.

The former Ministry for Agriculture, Fisheries and Food (MAFF) will be part of DEFRA.

Source: [www.dtlr.gov.uk/changes/index.htm](http://www.dtlr.gov.uk/changes/index.htm)

#### ***UK AIR QUALITY INDICATORS 2000***

In 2000, air pollution in urban areas fell to 16 days on average per site, compared with 30 days in 1999 and 23 days in 1998. The reason for the high figure of 1999 was due to high ozone levels, due in part to the warmer sunnier weather. Air pollution in rural areas fell from 48 days on average per site in 1999 to 25 in 2000.

Air pollution at urban sites is caused by ozone, fine particles (PM<sub>10</sub>) and sulphur dioxide.

Production of ozone is affected by the weather, which causes it to fluctuate. Since 1999, ozone has caused more days of poor air quality in urban areas than particles. Urban areas tend to have higher levels of oxides of nitrogen compared to rural areas, with the result that ozone concentrations recorded at urban sites are generally lower than at rural ones.

The average number of days of pollution at urban sites caused by fine particles, solely or in combination with other pollutants, fell by about 85% to 6 days per year, between 1993 and 2000.

The average number of polluted days caused by sulphur dioxide, solely or in combination, fell from 20 days in 1993 to less than one day in 2000. Particles come from numerous man made and natural sources, and can be generated in the UK and abroad.

The different points in interpreting the indicators are:

- in terms of public exposure, urban days of air pollution are more important than rural ones since many more people live and work in urban areas,
- days of pollution in rural areas are concentrated in the warmer months, whereas those in urban areas are spread more evenly throughout the year,

- the indicator only shows when the short-term health related thresholds are exceeded. For some pollutants, exposure is equally or more important.

The Air Quality Strategy targets for annual mean concentrations for particles and nitrogen dioxide (for 2004 and 2005 respectively) are currently exceeded in some urban areas.

Source: <http://www.detr.gov.uk/press/0105/env-011.htm>

### **CLEAN AIR FOR EUROPE**

The European Commission has announced a 3-year investigation into how air quality can be improved and pollution related health problems reduced.

The 'Clean Air For Europe' (CAFE) Programme could lead to new legislation in 2004. Many of the existing air quality directives are due to be revised in 2004; the CAFE Programme will provide the framework for these new air quality standards and emission ceilings.

In particular, the CAFE Programme will focus on fine particulate matter, ground level ozone, acidification and the over nutrification of watercourses.

Sources: *Air Quality Management, June 2001*; <http://www.planetark.org/dailynewsstory.cfm?newsid=10743&newsdate=08-May-2001>

### **NEW EU FUEL OBJECTIVES**

The European Commission have set a date of 2011 for which 'zero' (*i.e.* less than 10ppm) sulphur in fuels will become mandatory. To support this, the EC will introduce sulphur free petrol and diesel into all member states by 2005.

In addition to this, the European Commission are planning to introduce a proposal which will require oil companies to mix bio-fuel with petrol. The 'bio' percentage and the type of bio-fuel to be used are as yet undecided, but the intention is to lower carbon dioxide emissions from vehicles.

Sources:

<http://www.planetark.org/dailynewsstory.cfm?newsid=11225>; <http://www.eubusiness.com/>

### **VEHICLES & AIR POLLUTION IN DELHI**

Pollution in Delhi from motor vehicles is likely to worsen with current transport policies in the Indian megacity. Delhi is known to be a congested and polluted city which is experiencing population growth and dramatic increases in vehicle numbers.

In Delhi, less than 5% of road space is used by buses, which carry more than 50% of the city's commuters. The roads are typically full of old, polluting cars, crowding out pedestrians and cyclists. Road traffic accidents account for an average of 4 deaths per day in Delhi, a large percentage of these being children.

Road taxes in Delhi also encourage pollution. There is just a one-off road tax payable at the point of sale for private motor cars and no annual road tax fee or roadworthiness test. However, buses face an annual road tax of £14, 325 Indian rupees.

Transport management could improve the situation in Delhi. It seems that the Government are however confused on such issues. On June 14<sup>th</sup> 2001, the Delhi government encouraged private bus operators to go for CNG fuel conversion, only a week after the chief transport minister declared that this was an unsafe option!

Sources: *The Times of India, New Delhi, June 14<sup>th</sup> 2001*; *Centre for Science & Environment* [www.cseindia.org/html/dte/dte20010531/dte\\_edit.htm](http://www.cseindia.org/html/dte/dte20010531/dte_edit.htm)

### **ADVANCES IN HYDROGEN FUEL TECHNOLOGY**

General Motors claim to have found a way to increase the driving range of hydrogen-based fuel-cell vehicles to 500km, tripling what was previously achievable.

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Hydrogen fuel-cell vehicles do not emit harmful pollutants, water is the only by-product. One of the major hurdles for the manufacturers is the infrastructure for refuelling such vehicles. One possibility is to produce hydrogen on board from petrol. Vehicle emissions would still be very low because combustion would not be involved.

General Motors aim to have a hydrogen fuel-cell prototype car available by 2002 with predictions of hundreds of thousands of fuel-cell vehicles in use by 2010.

Source: <http://www.msnbc.com/news/586532.asp>

### **TINY PARTICLES MAY CAUSE HEART ATTACKS**

New American research suggests that ultra fine particles may trigger heart attacks. These tiny particles (PM<sub>2.5</sub>) are often derived from combustion processes and are therefore emitted from vehicles and industrial processes, rather than from agriculture or building work. These tiny particles can bypass the human defence system and penetrate deep into the lungs.

The study in Boston was carried out on 772 heart attack patients in the Boston area. Detailed interviews of when the symptoms for each case began were compared with air pollution data. The research implies that the risk of heart attack was greater amongst those exposed to high levels of PM<sub>2.5</sub> two hours before the onset of the heart attack. The research is currently being published in the 12 June edition of *Circulation: Journal of the American Heart Association*.

Source: <http://www.edie.net/index2.html>

### **INCINERATORS TO GO...**

New scientific research highlights more health issue links with incinerators, furthering calls to end waste incineration.

The research involved a study of 200 17-year olds in Belgium, some living in areas polluted by incinerators and others in rural control areas. The research,

currently being published in the medical journal, *The Lancet*, suggests that those living in the vicinity of incinerators had smaller sexual organs.

Greenpeace have also recently published a comprehensive review of incineration and human health. Greenpeace suggest that people living around incinerators risk exposure of a range of toxic chemicals, including dioxins by breathing contaminated air, eating contaminated produce or by skin contact with contaminated soil.

Sources:

<http://www.e-volve.org.uk/articles.asp?ID=1310>;  
<http://www.edie.net/news/Archive/4227.cfm>

### **CLIMATE CHANGE**

#### **"KYOTO" CENTRE BOOSTS UK DRIVE TO CURB GREENHOUSE GASES**

The Climate Change Projects Office (CCPO) is a new climate change bureau, which will be launched by the UK Government to encourage UK business to invest in efforts to cut greenhouse gas emissions overseas.

The CCPO will provide advice and support for businesses interested in carrying out projects under two 'Kyoto mechanisms', Joint Implementation and the Clean Development Mechanism. It will be guided by a steering committee chaired by Nick Baldwin, Powergen's chief executive.

A draft framework for the Emissions Trading Scheme - a measure that could cut carbon by at least two million tonnes a year by 2010 - due to start in April 2002, is published this month (May 2001). The Government has pledged £43m in 2003-04, to be allocated through a bidding system, as a financial incentive for companies to join the scheme.

Most questionnaires returned by companies and business highlighted the need for simplicity, flexibility, periodic review, and broad participation, and most agreed that all greenhouse gases should be included within the scheme as soon as possible. Many stressed that taking time

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to get the scheme right was more important than an early start.

Source:

<http://www.detr.gov.uk/press/0105/0251.htm>

### **EARTH CONSUMING TOO MUCH**

This month (June 2001), the Worldwatch Institute released its annual "statistical snapshot" of the world's economic trends and their environmental consequences. This year the institute was joined by the United Nations Environment Program (UNEP) to compile *Vital Signs 2001: The Trends That Are Shaping Our Future*.

Based on the new report, the average temperature of the atmosphere at the Earth's surface held steady at 14.36°C, making the past two years the sixth and seventh warmest on record. An older NASA dataset using only meteorological stations, dating back to 1867, has 2000 listed as the ninth warmest year on record.

However, not everything is bad news. Global carbon emissions from fossil fuel combustion declined for the third year, by 0.6% to just below 6.3 billion metric tons. In addition, the amount of carbon emitted per unit of global economic output continued to fall, by 3.6%, to 148 metric tons of carbon per million dollars of gross world product.

The report attributed part of these gains to the 33.2% reductions of greenhouse gases (GHG) emissions made by former Eastern Bloc nations since 1990. Nevertheless, western industrialised nations have increased carbon emission by 9.2% since 1990. The US, which is responsible for 24% of the world's GHG emissions, is emitting 13% more than in 1990. The EU and Japan are also falling short of their reduction targets.

According to Klaus Töpfer, UNEP's executive director: "The challenge of this new century is to extend the economic progress of the last 50 years, while halting the ecological decline - a sick planet will, sooner or later, lead to a faltering economy."

Source: *Global Environmental Change Report*, 22 June 2001, *Vital Signs 2001*.

### **THE BENEFITS OF BLEACHING**

A new study conducted by the Wildlife conservation Society (CWS), suggests that coral bleaching, in which reef-building corals lose symbiotic algae and become white during times of stress, may actually help some corals adapt to global warming and other environmental changes.

Andrew Baker, of WCS's Osborn Laboratories of Marine Sciences, transplanted eight species of scleractinian (stony) corals found in Panama's San Blas archipelago from shallow water (2-4 m) to deep water (20-23 m), and vice versa. The outcome was that corals in the shallow water bleached after eight weeks, but ultimately survived by recovering with new algae. Corals transplanted to the colder water did not bleach but poorly adapted, and many of these eventually died.

The study challenges the conventional view that coral bleaching is necessarily detrimental. "These findings indicate that bleaching can sometimes help corals respond quickly to environmental change," said Baker. "The same bleaching that makes corals so fragile may also during times of extreme environmental stress, help some of them survive.

That adaptation measure may be key to the survival of some ecosystems as sea surface temperature rise. Nevertheless, Baker noted that bleaching, particularly as a result of warmer sea temperatures, is still a major cause for concern, and will likely continue to cause high mortality among reef ecosystems.

Source: *Global Environmental change Report*, 22 June 2001, *Nature*, 14 June 2001, vol. 411, pp. 765-766.