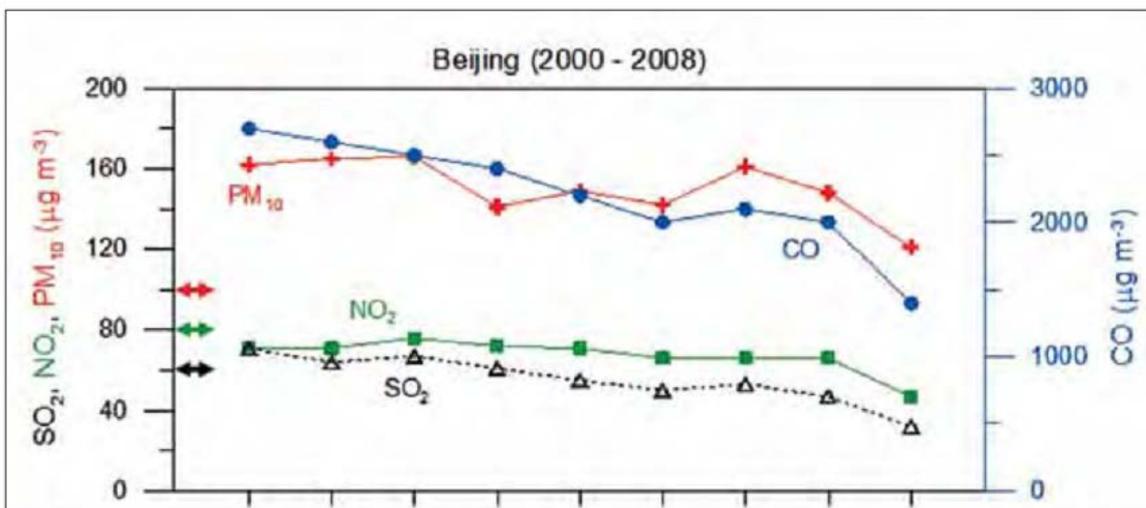


## Beijing 2008 and London 2012 Air Quality Comparisons

### 1. Beijing

Significant concerns were raised with regard to air quality in the run-up to the 2008 Olympic Games in Beijing. Monitoring of air quality in Beijing is carried out via a network of monitoring stations located both in Beijing itself and neighbouring regions.

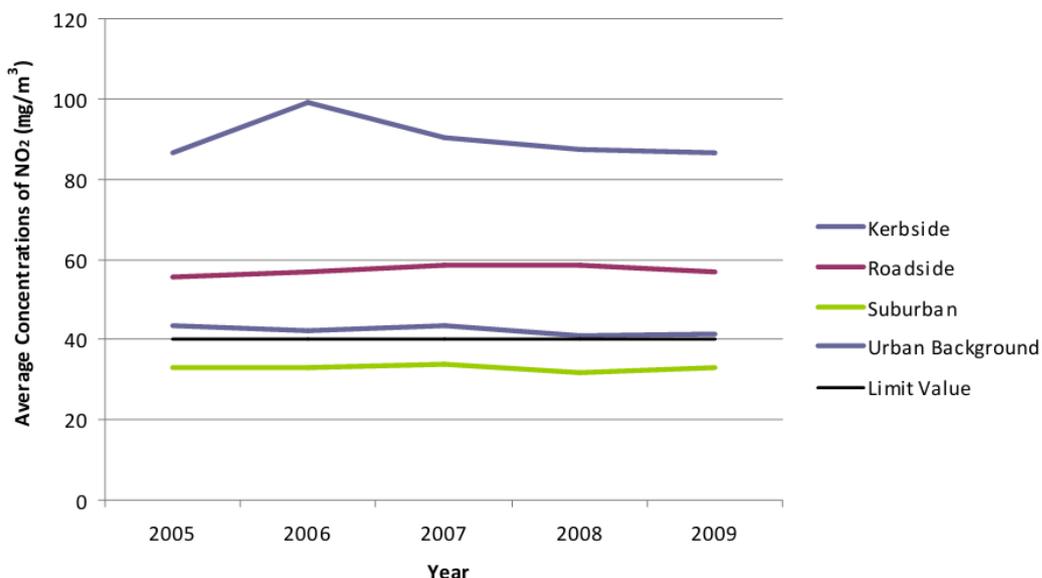
The graph below shows network annual average figures for four of the pollutants measured. This is an average figure for roadside, suburban and urban background sites<sup>1</sup>. The impact of long term pollution control measures, and short term measures taken immediately prior to the Games, can clearly be seen (see section 3).



Source: Beijing Environmental Protection Bureau

### 2. London

Compared to Beijing in 2008 London has significantly lower concentrations of carbon monoxide (CO) and sulphur dioxide (SO<sub>2</sub>). London's PM<sub>10</sub> concentrations, whilst still at worrying levels, are also significantly lower than Beijing experienced during the last Games.



Concentrations of nitrogen dioxide are, however, roughly in line with those seen in Beijing. The London Air Quality Monitoring Network does not produce network average figures; however annual averages for NO<sub>2</sub> at the various categories of monitoring sites are shown in the graph above<sup>ii</sup>.

Note that average concentrations at London kerbside and roadside sites are above the Beijing network average for 2008 (~50 ug/m<sup>3</sup>), and that the urban background sites are roughly comparable with the Beijing average. Also note that, unlike in Beijing, the London results show no falling trend in NO<sub>2</sub> concentrations<sup>iii</sup>.

### 3. Air Quality Management Measures in Beijing<sup>iv</sup>

Prior to the 2008 Olympic Games the Beijing authorities undertook 10 years of planning and implementation of emission control measures. 13 programmes were implemented at a cost of ¥60 billion (£6 billion). There were 4 main categories of emissions controls:

- reconstruction of energy supply
- control of traffic
- control of construction
- control of industrial pollution

A final series of short term air pollution measures started on 20<sup>th</sup> July 2008 (the Games began on the 8<sup>th</sup> August) which included:

- reduction in the use of private cars through number plate based restrictions
- a ban on higher polluting vehicles on urban roads from 1<sup>st</sup> July to 20<sup>th</sup> September, identified using a yellow (high pollution) and green (low pollution) tagging system
- a further reduction in the use of government cars
- a temporary halt to construction during the Olympic period
- more cleaning of the roads to reduce dust
- the suspension of heavily polluting industry
- a reduction in production for coal-based enterprises

### 4. Conclusions

In their environmental assessment of the Olympic Games the UN Environment Programme concluded, *'Significant efforts before and during the Games were focused on improving Beijing's air quality. As a result, air quality improved significantly. The air quality during the Olympic Games benefited from favourable weather conditions as well as anti-pollution measures. There are important lessons to be learned from the Beijing experience'*.

Whilst levels of most pollutants in London are well below those seen in Beijing in 2008, concentrations of nitrogen dioxide are roughly comparable. The Beijing experience demonstrates that a comprehensive plan of long and short term measures to improve air quality can be effective, a lesson that could be applied by the London authorities in 2012.

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<sup>i</sup> Source - UNEP report 'Independent Environmental Assessment: Beijing 2008 Olympic Games' ([www.unep.org/publications/search/pub\\_details\\_s.asp?ID=4018](http://www.unep.org/publications/search/pub_details_s.asp?ID=4018))

<sup>ii</sup> Source – Mayors Air Quality Strategy 2010 ([www.london.gov.uk/publication/mayors-air-quality-strategy](http://www.london.gov.uk/publication/mayors-air-quality-strategy))

<sup>iii</sup> Note that monitoring standards and techniques will differ between the two cities, so care should be taken in making comparisons between these results

<sup>iv</sup> Source – 'Air Quality Forecasting at the Beijing Olympics, a 2008 presentation by David Carruthers (CERC) ([www.cerc.co.uk/software-support/assets/data/publications/talks/CERC\\_2008\\_EPUK\\_AQ\\_forecasting\\_for\\_Beijing\\_Olympics\\_talk.pdf](http://www.cerc.co.uk/software-support/assets/data/publications/talks/CERC_2008_EPUK_AQ_forecasting_for_Beijing_Olympics_talk.pdf))

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