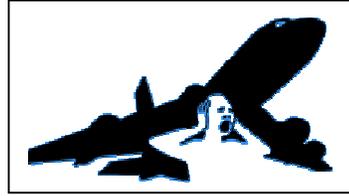


# Airport related noise pollution

## Briefing



### Background

The Government has claimed that a third runway at Heathrow and a significant increase in flight numbers (an increase of almost 50% from 2007 levels by 2030 [1]) would not conflict with the existing noise limits [2]. Indeed, the 2003 aviation White Paper pledged that the runway would only go ahead if it resulted in "no net increase" to the size of the area around Heathrow affected by 57 decibels of aircraft noise, the level deemed to mark "the onset of significant community annoyance". However, there are serious question marks over the Government's noise calculation methodology, which understates the extent of the problem and the number of people affected.

### Why the Government's numbers are flawed

- The Government uses a method known as "**Leq**" to calculate aircraft noise. This works by recording the noise of individual planes in decibels (db), and then averaging out the noise over a 16 hour day, including the quiet periods when there are no planes. The calculation also excludes the hour between 6am and 7am (the busiest hour of the day when both runways are used for landing), and makes no attempt to deal with night flights. The noise is then averaged out over a year (including the quiet days of the year).
- The numbers are not based on actual measurements. The last noise study to take measurements on the ground was published in 1985. Each year since then, the noise contours have been produced on computers. There is a lot of evidence that the computer estimates give too much weight to the noise of individual planes (which have got quieter in recent years) and not enough to the number of planes (which have increased significantly). Therefore, the results bear little resemblance to reality. For example, now that Concorde (the noisiest of all passenger planes, but with only 3 or 4 flights each day) has gone, the official noise contours have shrank by a third!
- On-the-ground measurements are not being taken in areas further way from Heathrow, but these are the places which in recent years claim to have experienced a considerable upsurge in aircraft noise.

### What the experts say

- A number of studies have suggested that the Leq approach is flawed, and should be replaced by one which measures both the number of noise events and their "noisiness". The Government's own **independent experts** in the **ANASE report** [6] concluded that there was a far greater sensitivity to the number of noise events than could be reflected by the Leq approach. Though Leq was accepted as one indicator, it was not the best and an index which better reflected the numbers of events was recommended.
- Even where Leq is used, the **World Health Organisation** challenges the Government's assertion that "the onset of community noise" starts at 57db Leq. They argue it is lower: at 55db Leq "serious annoyance" begins; at 50db Leq "annoyance" begins.
- Again the ANASE report [6] reached similar a conclusion, arguing that the onset of significant community annoyance caused by aircraft noise was MUCH lower than the 57dB used by the government and that 50dB was a more appropriate threshold value.
- Because the decibel is a logarithmic, not a linear, scale, the difference between 57 db and 50 db represents a **four-times** reduction in noisiness.

The DfT's response to the ANASE report was initially to avoid publishing the report, and then when made to do so, to seek to discredit it, and to disregard the findings for which it had paid significant sums of money. This is in stark contrast to the commitment given in 2001 by the then Aviation Minister, Bob Ainsworth, when he commissioned the study: "this study underlines the Government's commitment to underpin our policy on aircraft noise by substantial research that commands the widest possible confidence".

### **Noise – the true numbers affected**

The Government and the aviation industry have for many years suggested that as few as 325,000 people could be affected by the current levels of aircraft noise from Heathrow. These numbers reflect the numbers living within the 57 db area. However, independent research suggests that, using a 50 db threshold, the number of people affected could be in excess of two and half million, with annoyance from aircraft noise stretching into parts of South East and North London, as well as well beyond Maidenhead to the west [3] and [4]. A report by the respected consultants Bureau Veritas, found that "aircraft noise dominated the local environment" in areas 20 kilometres from Heathrow [5]. Yet BAA and the Department for Transport only measure noise within the 57 db area, and do not have any detailed figures for noise levels in the rest of London.

The numbers for other airports within the UK might be expected to be similarly understated.

Moreover, there is evidence to suggest that the areas affected by noise from Heathrow have increased significantly in recent years. For example, a study comparing flights in 2005 with those in 1996 found evidence of a significant increase in the number and geographical spread of aircraft movements, with significant increases in the early morning (4am-6am) where aircraft noise might be expected to cause the greatest disturbance to sleep [4].

The numbers affected would increase significantly if a third runway was built, creating new flight paths and result in an extra 500 flights a day over London. **Mixed-mode** (the end to runway alternation) would also significantly increase the annoyance for those already suffering from noise pollution by depriving them of the half day break from aircraft noise that they currently 'enjoy'. It would also further increase the overall number of planes using the airport.

### **Why noise matters**

The government is seeking to focus debate on the claimed economic benefits of airport expansion. However, the resulting noise pollution can also have significant economic costs which are often underestimated, or simply ignored because they are hard to quantify. Some examples are given below:

- **Impact on public health** – academic studies have found evidence of a proven link between heart attacks and aircraft noise. For example, a recent study by published by Imperial College [7] investigated the impact of aircraft noise on blood pressure and heart disease in residents around six major European airports, and found that people exposed to aircraft noise over a long period were at a greater risk of suffering from hypertension and heart attacks than the population as a whole. This has obvious implications for costs to the NHS. Night noise caused particular problems. The World Health Organisation has also recommended levels for noise at night. It suggests that the maximum noise outside houses should not exceed 60 decibels. It is interesting to note that if this was adhered to in London, it would rule out all night flights.
- **Impact on education** – studies have found evidence that the reading skills of children attending schools exposed to chronic aircraft noise are negatively impacted. For example, a study of almost 3000 children aged 9–10 years, attending schools located near three major airports in Spain, the Netherlands, and the UK, found that reading comprehensive was poorer than children of equivalent socio-economic characteristics at unaffected schools [8]. The author, Professor Stansfeld, based at Queen Mary's Wolfson Institute,

concluded: “The results suggest that long term aircraft noise exposure impairs children’s reading. Schools exposed to high levels of aircraft noise are not healthy educational environments”. These results are backed by other studies which have produced similar results [9]. An editorial in the Lancet suggested that the rising incidence of attention-deficit disorders might be related to environmental noise stress [10].

- **Impact on productivity** – it is highly likely that children are not the only ones whose concentration levels are negatively impacted by aircraft noise. With up to 2.5m people living in areas affected by noise from Heathrow alone, and many of these likely to also work within affected areas, lost sleep will inevitably have an impact on the productivity of London’s businesses.
- **Impact on you** – if Heathrow and other airports continue to expand, the numbers of disgruntled affected voters will rise as a result.

**Briefing sheet produced by HACAN. For further information contact John Stewart – [johnstewart2@btconnect.com](mailto:johnstewart2@btconnect.com) or tel 0207 737 6641 [www.hacan.org.uk](http://www.hacan.org.uk)**

References:

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2. Adding capacity at Heathrow airport - public consultation document
3. Based on the numbers of people living within the 50 db noise contours for Heathrow. Attitudes to Noise from Aviation Sources in England (ANASE), 2001, commissioned by the Department for Transport by independent consultants MVA.
4. Aircraft Noise and London Heathrow Flight Paths, February 2007, Bureau Veritas, Acoustics and Vibration Group. (Bureau Veritas is a firm with a distinguished record which has done work for a variety of clients including local authorities and the Government. Its Director, Stephen Turner, acts as an adviser to DEFRA)
5. Aircraft Noise and London Heathrow Flight Paths, February 2007, Bureau Veritas, Acoustics and Vibration Group found, for example, that during busy hours a plane flies over Ruskin Park in South London, 20 kilometres from the airport almost every 90 seconds, usually louder than 60 decibels.
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