

# HACAN

**Heathrow Association for the Control of Aircraft Noise**  
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Topic 5 Position Statement to the Public Inquiry into a  
Fifth Terminal at Heathrow by  
the Chairman of HACAN, Dermot Cox,  
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## 1 Introduction

Sir, we feel that the process of presentation of evidence and cross-examination of witnesses has in this topic led to a genuine improvement in knowledge and understanding of fundamental issues in a way which did not apply to the same extent in Topic 1, the other topic in which we played a part. It is probably an unfair oversimplification to say that in Topic 1 parties outlined their positions at the beginning and then, many months later, following much discussion, repeated those positions with little alteration. But, certainly in our view, the opportunity to cross-examine Government witnesses about the theoretical basis for assessing the impact of aircraft noise on people and Government policy has clarified many important aspects. The result is that the issues facing this Inquiry in relation to the decision whether to permit a fifth terminal in terms of its noise impact on the affected populations are in fact, despite the many technical complexities inherent in the subject, clearly delineated.

I will summarise them briefly in this introduction to HACAN's Position Statement on air noise, before giving detailed references to the relevant evidence a little later.

Firstly, to describe aircraft noise impacts from the operations of Heathrow Airport in the broadest terms possible, our position is that, while there was a significant improvement in the decade 1977 to 1986, there has been a significant deterioration in the subsequent decade which is continuing. This is a direct result of the Government's betrayal of the condition on which Terminal 4 was approved, namely the abandonment of the 275,000 flights a year limit and the subsequent increases in flight numbers by over 50% and passenger numbers by 85%. Our position therefore is to state that Government claims that the noise climate has improved over the past decade are a serious misrepresentation of the true situation. Naturally, similar claims

made by BAA, relying on Government assertions, must also be regarded as misrepresentations.

This leads to the second fundamental conclusion, namely that the current noise impact of Heathrow Airport upon the people of London and the Thames Valley is wholly unacceptable and, in fact, constitutes an environmental emergency requiring immediate action to reduce noise pollution from the airport.

Thirdly, this deterioration in the noise climate in recent years is therefore sufficient reason in itself to rule out any proposals involving substantial expansion of Heathrow since any expansion must either worsen the climate further or nullify improvements which could otherwise recover.

Fourthly, on BAA's figures, the proposed fifth terminal involves a further expansion of Heathrow's capacity which is almost an exact replication of the expansion which has occurred since 1986. The increase in passenger numbers between 1986 and 1997 was 27 million (31.3 million to 57.8 million passengers per year), which is very close to the 30 million passengers per year additional capacity which BAA claims a fifth terminal would provide. There has been no significant technological step change in aircraft design in the past ten years, although there have been incremental reductions in noise per aircraft as noisier aircraft from earlier periods have been phased out. There has been a continuing gradual increase in passengers per aircraft during this period. Given the long lead times required for the design, manufacture and acquisition of new aircraft, we know enough today to state that there are no grounds for expecting the next twenty years to show a significantly different pattern in terms of changes in noise per aircraft and average size of aircraft from the past ten years. Therefore, in the absence of any justification for seeing the issue differently, if an increase of 27 million passengers in the past decade or so has worsened the noise climate significantly, we must expect an increase of a further 30 million passengers to lead to yet more deterioration. In HACAN's view, this deterioration will arise as a result of substantial further increases in flight numbers, leading to the inevitable abandonment of the few remaining environmental protection measures, most importantly runway alternation. But, should the increase in passenger numbers be accommodated with greater weight given to increases in aircraft size, the worsening in the noise climate will occur through the shift in the mix of aircraft to the larger noisier models. A Boeing 747 creates far more noise, disturbance and annoyance than a 757, despite the close numerical proximity of the two aircraft in the Boeing family tree.

## 2 Evidence for the counterfactual case that noise has improved and will improve

The proceedings of this Inquiry during Topic 5 have provided the opportunity to test in detail the theoretical structure and factual basis for the claims that the population which suffers noise pollution from Heathrow has experienced improvements in the level of annoyance in recent years. BAA claims that the community suffering from noise has declined in numbers and that average levels of annoyance have reduced (BAA 64, para 6.4.5, page 46; BAA 65, Appendix I). But BAA has put no supporting evidence in favour of this claim to the Inquiry beyond relying on the figures produced by NATS. While thousands of residents have made the effort to write to the Inquiry describing how aircraft noise has worsened to completely unacceptable levels and hundreds of individuals have taken the greater pains to appear in person and make a statement making the same point, we are not aware of even a handful of individuals who have given evidence that the annoyance they experience from aircraft noise has declined in recent years.

Therefore, the claim that community noise annoyance has been consistently reducing in recent years relies entirely on the computer modelling carried out by Dr Ollerhead and his colleagues which generates the Leq contours.

Before examining this theoretical modelling process in depth, it is worth bringing the discussion into contact with reality as far as is possible. The counterfactual claim that community noise annoyance has declined in the past ten years and will decline, or at any rate not worsen, with the addition of a fifth terminal, amounts to saying that it is possible to add approximately 30 million passengers per year to Heathrow, equivalent to half the entire population of the UK, without anyone noticing they are there. It amounts to saying that it is possible to add capacity greater than Gatwick Airport to Heathrow without anyone noticing the difference. But we know that there is significant local concern about noise levels from Gatwick Airport, even though it has a current capacity less than Terminal 5. Similarly, it is claimed that we can add capacity equivalent to Charles de Gaulle or Schiphol without anyone noticing. But the community concern about noise from these other European airports is so great that in both cases the authorities are looking to add capacity elsewhere rather than continually expand these airports. This was confirmed to me in person a couple of weeks ago when I and a colleague were invited by the French Embassy to meet a delegation from the French National Assembly studying airports policy. There were two members of the assembly in the delegation who both represented constituencies close to Charles de Gaulle Airport at Roissy. They explained that, although the

French Government had agreed to the construction of two more runways at Charles de Gaulle, they were setting a limit on the airport's capacity of 55 million passengers a year which is expected to be reached in 2015. This is less than the throughput of Heathrow today - so much for BAA's claim that the leading position in Europe of Heathrow as a four terminal airport is under threat from Charles de Gaulle. This delegation was also visiting Manchester Airport, having previously met BAA, to explore the possibilities of regional airport expansion. This was their preferred solution to meeting the growth of air transport in France. They opposed the mega hub concept, and the concept of concentrating a nation's air traffic in one city and therefore questioned the proposals for a third Paris airport.

To put it simply, the evidence to support the claim that the community around Heathrow suffers significantly less annoyance from aircraft today than in 1986 will have to be very convincing to persuade us that the commonsense expectation that nearly 30 million more people flying in and out of Heathrow creates more noise annoyance is mistaken or that the people giving evidence to this Inquiry to this effect are unrepresentative of their communities.

### 3 16 hour Leqs

The claim that community noise annoyance has declined in recent years is therefore based entirely on the behaviour of the Leq contours and, in particular, the 57 dB(A) Leq 16 hour contour. As I will demonstrate shortly, this assumption that a particular and unchanging contour value represents annoyance is an inappropriate means of measuring and comparing community noise annoyance in circumstances which differ considerably either in terms of time or in terms of the operational mix at Heathrow.

However, even staying within the Leq contour methodology as applied by the Government, it has become clear to the Inquiry that the approach quite obviously underestimates community noise annoyance in practice at Heathrow. This is because the 16 hour period during which noise is measured excludes the hour 6am to 7am. Whatever Dr Ollerhead may apparently say about night flights causing negligible sleep disturbance around airports, this Inquiry can have no doubt that in fact aircraft during the night period, that is from 11pm to 7am, cause the highest levels of community noise annoyance of any flights. It is a matter of record that flight numbers during the hour 6am to 7am have increased at a far greater rate than daytime flight numbers at Heathrow in the past ten years. It is therefore indisputable that the figures published by the Government showing declines in the population

suffering noise annoyance from Heathrow in recent years, and quoted by BAA, seriously underrepresent the extent of noise annoyance. It is impossible to say definitely that, as far as this particular issue is concerned, the population suffering noise annoyance has increased, but we can say that it has not declined to the extent claimed. To remedy this problem within the Leq methodology, it would not be sufficient simply to add the noise energy from the period 6am to 7am to the daytime total. Rather a multiplier would need to be applied to the noise energy from this period to reflect the significantly higher annoyance created by early morning flights.

The importance of this example lies not so much in the specifics, particularly as the Leq methodology as a whole as currently applied is not reliable. The most illuminating conclusions from this example concern the way that the Government and the air transport industry have presented the data generated by the Leq 16 hour system. If you look at CD 226, the most recent NATS report on community noise annoyance at Heathrow, you will read figures showing a decline in the population suffering annoyance compared to the previous year. Nowhere in the pages of explanation will you read any qualification pointing out the limitations of a system based on 16 hours when Heathrow operates at full capacity for 17 hours and operates at some level for 20 hours. You will read the slightly surprising comment that the number of departing flights increased more than arriving flights compared to the previous year and will perhaps be reassured that those flights did not disappear into the Bermuda Triangle by the explanation that the corresponding increase in landing flights occurred before 7am (CD 226, para 2.3.3, page 3). However, the authors decline to make any comment on the possibility that this increase in flights before 7am could conceivably have increased community noise annoyance.

Unfortunately, we do not consider this example is simply the result of tunnel vision by the scientists concerned. As we have made clear, HACAN believes that the Department of Transport, now the DETR, works to the agenda of the air transport industry, rather than seeking to protect the interests of UK citizens affected by pollution from airports. This is only one of many examples where we can see the DETR knowingly underrepresenting community noise annoyance at Heathrow in order to allow BAA, British Airways and others to make false claims about declines in noise annoyance.

#### 4 The measure of noise annoyance is the experience of people

The improvement in our understanding of how to assess the impacts of noise pollution on affected communities which I referred to earlier arose as a result of the

straightforward and constructive explanations provided by Dr Ollerhead both in his evidence and in his replies when he was cross-examined by Hillingdon, LAHT5 and HACAN. We remain in disagreement with Dr Ollerhead's assertions about changes in community noise annoyance in the past decade and about the impact of night flights. However, several important areas of common ground were established on the fundamental questions of which yardsticks should be used when assessing the problems arising from aircraft noise.

I said in my opening statement for this topic:

"The extent of noise disturbance from any source can only be assessed by measuring the impacts on people. This may appear rather obvious. However, this central truth has been ignored over the past ten to fifteen years with the result that there is now no official measurement of community noise disturbance carried out." (HAC 78, page 11)

Dr Ollerhead has both confirmed and clarified the central truth that any measurement of the impact of noise pollution on affected populations must be based on the human experience of the people concerned. The diagram 5.1 in Dr Ollerhead's appendices (DOT 2011) was particularly helpful. This made clear the technical distinction drawn by Dr Ollerhead and his colleagues between "disturbance" and "annoyance", with the result that in order to share a common language, we now replace the term disturbance in our earlier references by community annoyance.

Dr Ollerhead's main proof confirms that:

"Community annoyance is the most general criterion of long-term aircraft noise impact." (DOT 2010, para 5.3)

Dr Ollerhead also makes it clear in his evidence and in answers during cross-examination that the best method of measuring community noise annoyance is by social surveys (Day 335, page 78, lines 13-15).

This is therefore very important common ground between the parties: that the central source of information about the impact of aircraft noise is the experience of the people affected, preferably established through social surveys. It follows that the best source of information about changes over time in the severity of the impact of aircraft noise on people is the experience recounted by people themselves. The human experience of aircraft noise is inevitably subjective. It cannot be understood

and measured by the supposedly scientific technique of calculating average energy contours. Social surveys are a systematic and reliable method of measuring the nature, distribution and intensity of the subjective responses to aircraft noise within a population.

In principle the ideal method of measuring the impact of aircraft noise on the communities around Heathrow would be to conduct regular social surveys around the airport in areas where aircraft overfly. This would in practice cover a huge area, since we know annoyance occurs along the flightpaths for 20 miles. Therefore, the procedure used when social surveys are conducted is to carry out studies in representative sample areas which then can be used to calibrate Leq contours of average noise energy on the assumption that annoyance at a particular moment in time correlates with noise energy similarly for different people living in different locations around the airport (a working assumption, which is questionable in practice). The critical point is that it is the experience of people which determines the significance of Leq contours.

## 5 The shift from community noise annoyance to average noise energy

However, in the mid 1980s the Department of Transport in reality abandoned community noise annoyance as the variable which it targeted in its policy to deal with problems of aircraft noise pollution at Heathrow. This is seen most clearly in the Government's notorious betrayal of the ATM limit set by Glidewell as a condition for the permission for Terminal 4 and confirmed in Parliament by Norman Tebbit in 1979. When Glidewell stated in his report that a limit on flight numbers was:

“vital to ensure that noise from aircraft at Heathrow should decline as BAA and Government expect” (CD3 para 13.2.19)

his statement reflected the commonly accepted belief that community annoyance from noise increases if flight numbers increase. When Glidewell says “noise” we know he means community noise annoyance – he does not mean a particular method of estimating average noise energy over certain hours of the day.

Of course, the other critical determinant of community noise annoyance is the noise levels of the flights concerned. But, from the Wilson Committee until the mid 1980s it was accepted by all interested parties that both the numbers of flights and noise per flight were major determinants of community noise annoyance and policy to control noise pollution needed to target both variables simultaneously. The commitment to

applying the Glidewell limit was still in evidence as late as 1983 and 1984. Letters from the relevant civil servants to HACAN committee member Virginia Godfrey, who has given evidence to the Inquiry, show them discussing the imposition of the limit, apparently in good faith (HAC 107).

In HACAN's view, no evidence has remotely demonstrated that this approach is erroneous and should be abandoned. However, without providing a shred of evidence, the Government proceeded to abandon its previous commitment to limiting flight numbers in the 1985 White Paper, where the Department of Transport stated:

"However, after careful consideration of evidence and the Inspector's advice, the Government believes that other, more effective ways of limiting the disturbance from aircraft noise should be pursued." (CD2, para 5.14)

It has become clear that this decision marked the shift from focusing on community noise annoyance to the adoption in practice of a control target of average noise energy, in particular the 57 dB(A) Leq contour. Bound up in this shift were several unspoken assumptions which are extremely questionable and have never been tested:

- that the annoyance people living around Heathrow experience from aircraft has a one-to-one correlation with average noise energy (the so-called "energy principle")
- people living around Heathrow who experience annoyance from aircraft will not experience increased annoyance even if flight numbers increase very substantially – for example: the Leq system has three bands of annoyance, low, moderate and high: someone currently on the 57 Leq boundary would not be deemed to have moved above low annoyance even if flight numbers tripled from 425,000 to 1,275,000 a year at similar average noise levels Dr Ollerhead described such a scenario as "a fantasy" (Day 335, page 111, line 24), but it is not a fantasy to say people in Kew may have experienced an increase in their annoyance from aircraft noise from low annoyance to medium annoyance in recent years, the fantasy is in continuing to rely on a noise measurement methodology which says that another 100,000 flights a year, let alone 800,000 flights a year would not lead to more than low annoyance for the people of Kew

- that we can have such confidence in average noise energy as a proxy for community noise annoyance that it is unnecessary to measure community noise annoyance directly even after a period of many years during which flight numbers have increased substantially and the operational mix of aircraft has changed significantly

By insisting that these assumptions are true, the Department of Transport has produced computer-generated calculations of average noise energy at Heathrow which apparently indicate that community noise annoyance has declined in the past ten years, even though flight numbers have increased by 50%.

#### 6 The inadequacy of the evidence supporting the claim that the 57 dB(A) Leq 16 hour contour accurately represents the onset of community noise annoyance in 1998

The proceedings during this topic have demonstrated such serious shortcomings in the evidence to support claims that the 57 dB(A) contour accurately represents the onset of community noise annoyance today that we believe this Inquiry cannot place any reliance on this contour, the associated population counts and trends in these figures. (Later sections will look forward and consider the implications of this conclusion for future predictions.)

I will put to one side the question marks over the choice of Leq as a measure and the particular variant of Leq made at the time of the 1982 ANIS study (covered in Dr Jones' proof HAC 62) and accept for the sake of argument that the correlations stated at that time between Leq contours and community noise annoyance as measured by social surveys were broadly accurate. The important question is whether the labels attached to the 57, 63 and 69 contours in 1982 can be considered to continue to apply in 1998. Unfortunately, there can be no definitive answer to this question because of the failure by the Government to conduct any direct measure of community noise annoyance for 16 years. The Inquiry must therefore form its best judgment on the evidence available.

I should emphasise that HACAN is not prepared to take responsibility for the failure of government to carry out reliable assessments of community noise disturbance, a charge which BAA appears to make in its Topic 5 position statement (BAA 2005B page 75, para 18). It is a profoundly unsatisfactory situation that government has not collected the data necessary to show how community noise annoyance has changed as the number of flights at Heathrow have increased and the size and noisiness of

aircraft have changed. The fact that the government has failed to measure this important issue of community concern does not mean that HACAN has no method to assess changes in annoyance in the future as BAA alleges. We have described and clarified the method in our evidence and cross-examination: regular social surveys which allow true annoyance to be correlated with changes in the operational characteristics of Heathrow and allow Leq contours to be regularly recalibrated. Unfortunately the Inquiry is not going to receive such systematic and comprehensive data and has to rely on the other sources of evidence on community annoyance which we have indicated. In other countries Government would either carry out such environmental impact research itself as part of the assessment of proposals for a major airport development or require the developer to commission such research. In the context of a Public Inquiry costing millions and a proposed development costed at £1.8bn it is astonishing that this Inquiry will not have the benefit of accurate up-to-date information on the issue of greatest public concern in relation to these proposals, which would be obtained from expenditure of a few hundred thousand pounds. We have already explained our view on the priorities and objectives of the DETR

Dr Ollerhead made a variety of comments on this issue in reply to different questions. However, taken together, our view is that Dr Ollerhead recognises that there is a very serious possibility that noise-response relationships have changed in the past 16 years and that the 57 Leq contour may no longer accurately indicate the onset of community noise annoyance at Heathrow. While he noted some peripheral evidence, the "spot checks", that the relationship may not have changed, this could not be considered decisive.

When questioned by Mr Smith about whether the 1982 correlations could still be considered to be applicable, Dr Ollerhead said:

"Certainly further recalibrations of the scale would be possible." (Day 333, page 119, lines 16 to 17)

And a moment later:

"To what extent expectations and reactions and noise-response relationships might change over that time, who can tell?" (Day 333, page 119, lines 22 to 25)

This is a clear statement that after a period of time there is a real possibility that Leq contours may need to be recalibrated against levels of community noise annoyance,

as measured by social surveys. Dr Ollerhead said several times that a recalibration would be desirable or helpful (e.g. Day 335, page 61, lines 23 to 24)

In his answer at this point to Mr Smith, it is clear that Dr Ollerhead is concerned to defend the usefulness of Leq as a measure of noise exposure. He said:

“I do not think anything has happened in the intervening years which throws out upon the utility of Leq as an underlying noise index.” (Day 333, page 119, lines 2 to 4)

But there is a vital distinction between accepting that Leq may be a valid mechanism for producing an index of noise energy or noise exposure and arguing that a particular correlation between noise energy measured by Leq at one moment in time and community noise annoyance remains accurate decades later. Dr Ollerhead made clear the difficulties involved in making the connection in one of his replies to Mrs Brushfield:

“Our concerns always are that we are normally asked not only to produce the noise levels, but to make a judgment about to what extent this might be regarded as acceptable or annoying and so on. That is where the difficulties begin.” (Day 338, page 96, lines 3 to 8)

HACAN argues that the Leq contours need to be recalibrated against an up-to-date social survey. We believe that this would show the onset of community noise annoyance occurring at a lower Leq contour than the 57 dB(A) contour and would show that community noise annoyance has been increasing over the past ten years rather than decreasing. This position does not require the abandonment of Leq as a measure of noise exposure, simply its updating, according to the principle that the experience of people determines the significance of the figures generated by the Leq contour system rather than the current procedure, which is to say that the 57 dB(A) contour tells us all we need to know about the experience of people 16 years after it was originally calibrated.

Dr Ollerhead's position was not to try and defend the claim that the 57 Leq contour could now be considered to be closely correlated with the onset of community noise annoyance, but rather to say that the Leq system could be used reliably to compare two situations, which he saw as the main issue before this Inquiry:

“I do not think that I, or anyone else, would like to argue that the best threshold lies exactly at 57; whether at 57 or 56 or 58 or at some points in between, we do not really know.... It is my opinion that the points that we have are sensible and, if we are comparing one situation with other, and really that is one of the principal uses of the scale and the contours, the precise choice is not too critical.” (Day 333, page 121, lines 12 to 22)

Dr Ollerhead is saying that even if we cannot be sure that our yardstick is precisely a yard long (please forgive the non-metric example) it is still a reliable guide to tell whether one piece of cloth, say, is longer than another — even though we cannot say precisely how long they both are.

However, this assertion can only have validity if the two situations being compared are sufficiently similar that there is no need to recalibrate the measuring system. There are two separate issues: firstly, that the measuring system may only be an approximation, and, secondly, that over time, or if the situations differ significantly, the, approximate, measuring system may need to be recalibrated. We may need a second yardstick to make our second measurement — and until someone has provided that second yardstick it is impossible to make any comparison.

To return to Heathrow, the situation today is so different from that applying in 1982 — in terms of increased flight numbers and changes in aircraft flying — that we believe very little reliability can be given to comparisons based on applying the 57 Leq threshold established in 1982. As Dr Ollerhead’s diagram in 5.1 of his Appendices shows, noise energy is two steps removed from the variable we are actually trying to measure, community noise annoyance. The clear conclusion of his unique expertise in this field is that noise energy is a statistically weak predictor of community noise annoyance. This is of great significance when we know that we have available to us an extremely good measure of community noise annoyance: we can carry out the necessary social surveys to measure it directly. Dr Ollerhead says:

“What the many noise index studies have demonstrated most clearly is that the relationships between noise exposure variables and annoyance are statistically weak.” (DOT 2010, para 6.40, page 67)

## 7 How the Government misrepresents the Heathrow noise problem

This Inquiry encountered a serious problem in evaluating Government policy in relation to aircraft noise pollution at Heathrow when the Minister for Transport in

London made a statement on the issue to Parliament on 28th October 1997, during the course of this topic. Ms Jackson claimed that the noise climate around Heathrow has been improving and said:

“This noise contour [the 57 dB(A) Leq noise contour] is the one widely accepted as being closely correlated with the onset of community annoyance from aircraft noise during the day.” (DOT239, column 815)

Ms Jackson’s statement is clearly wrong and she has, no doubt inadvertently, misled Parliament, MPs and the public. As I said to Ms Duthie when I cross-examined her on this point, there are only two people who believe that the 57 Leq contour is closely correlated with the onset of community annoyance, namely Ms Jackson and Ms Duthie herself. Ms Duthie’s reply to my question indicated that she believes that Dr Ollerhead shares the same belief. She said:

“I thought you were going to say me and Dr Ollerhead.” (Day 342, page 146, line 25)

I took Ms Duthie to the quotation from Dr Ollerhead’s evidence about the correlation between noise exposure variables and annoyance being statistically weak and put it to her that if we rely on Dr Ollerhead on this point, it is an inescapable conclusion that Ms Jackson’s statement was incorrect. Dr Ollerhead does not consider the 57 Leq contour to be closely correlated with the onset of community annoyance and, since many people concerned with this issue bow to Dr Ollerhead’s expertise, it is also inaccurate to claim that this close correlation is widely accepted. Ms Duthie refused to accept that Ms Jackson’s statement was clearly contrary to the evidence of Dr Ollerhead. (In my reading Dr Ollerhead is consistent on the lack of a close correlation both in his written evidence and in his answers as a witness.) Ms Duthie insisted that Dr Ollerhead’s evidence supported Ms Jackson’s statement:

“I do not agree for the reasons I have given and indeed for the reasons that Dr Ollerhead has given.” (Day 342, page 159, lines 15 to 116)

For Ms Duthie and the Minister for Transport the “noise climate”, that is average noise energy, and community noise annoyance have an unshakeable one-to-one correspondence. Ms Duthie said:

“The Government’s view is that the noise contours give the best estimate of the correlation of noise with annoyance.” (Day 342, page 151, lines 15 to 18)

Sir, as you said during this discussion, the point here is an important one and also one on which you will have to make up your own mind. In our view, this episode reveals the exact reasons why the noise problem at Heathrow has become such a serious public issue. We have the Parliamentary Under-Secretary of State for Transport misleading Parliament on a critical element in the procedures used for assessing community noise annoyance. We have to assume that the Minister was advised by the head of her Aviation Environmental Division. We have to conclude that Ms Duthie has effectively invented her own approach to the measurement of community noise annoyance which she believes has scientific justification, but which in reality has no such justification. This approach has now become Government policy. The approach is used to justify categorical claims that community noise annoyance has been declining in recent years. The imagined scientific foundation for the approach is used to dismiss out of hand evidence from the community and their democratic representatives that community noise annoyance is increasing and has become an urgent environmental problem.

There may also be a problem for this Inquiry in that it is being held at the request of the Secretary of State for the Environment, Transport and the Regions and is charged with assessing whether BAA's application is in accordance with Government policy. But, in our view Government does not understand its own system for measuring community noise annoyance. As always, it can be helpful to speculate on the motivation for behaviour which appears strange or irrational. As we have said, we believe the DETR, certainly the ex-Department of Transport component, has been "captured" by the air transport lobby, in a parallel fashion to the capture of the MAFF by the agriculture lobby. But, in addition to this, there is a strong incentive by the DETR to avoid conducting up-to-date research because it clearly runs the risk, from its point of view, of proving that community noise annoyance has been increasing at Heathrow. This would cause intense departmental embarrassment and criticism from the public and Members of Parliament, asking why misleading advice had been given on this important issue for so many years.

As someone who works in the field of systematic opinion research for large businesses, I would like to put in a commercial context the DETR claim that 16 year old social survey results are valid today and can be used to test forecasts for 20 years into the future. If a major IT client came to me, or a reputable market research organisation, asking for accurate information on consumer attitudes towards computers, I would be ridiculed if I pointed to a substantial piece of research conducted 16 years ago and suggested this would answer the client's questions,

while pointing out that the government had banned the production of more contemporary research. 16 years ago, the PC had not been invented, the laptops on our desks were not even thought of. Research based on the era of mainframes would be worse than useless, it would be positively misleading. My potential client would understand the market better simply by observing for himself what types of computers are being used in homes and businesses and being sold and advertised. In the same way, it is ridiculous to claim that 16 year old research can guide us in relation to the impact of a Heathrow which has changed dramatically from that in 1982.

The source of Ms Duthie's misunderstanding of the strength of the correlation between the 57 Leq and the onset of community noise annoyance is, I think, revealed in her answers when she was re-examined on this point by Mr Randle. She said that Dr Ollerhead's view, which the Government accepts:

"is that, despite the difficulties there is a statistically significant relationship between noise and average annoyance, community annoyance, which kicks in at 57 dBA. Above that, where you get higher levels of noise, I do not think anyone has questioned, but below that 57 dBA contour, the statistical significance of the relationship begins to frazzle at the edges. You cannot rely on the statistical significance of the relationship between noise and annoyance below 57 dBA." (Day 344, page 91 line 22 to page 92 line 6)

But the fact that there is no correlation below 57, does not mean there is a strong correlation at 57, as Dr Ollerhead's evidence shows. Ms Duthie is simply displaying again her fixation on the belief that because certain relationships were established in 1982 they must still apply in 1998. We have not argued, with some qualifications, that the correlations which were established between the noise contours and the social survey results in 1982 misrepresented the situation in 1982. The 57 dB(A) contour may well have accurately indicated the onset of community noise annoyance and accurately indicated that below this level no statistically significant relationships were found. But, we are arguing that conditions have changed substantially and that a new social survey is long overdue. Ms Duthie has no privileged ability to predict accurately what the calculation of the multiple regression analyses would yield in terms of the statistical significance of the relationships between the new social survey results and assorted dB(A) contours today. It is entirely possible that a new study would find statistically significant correlations between community noise annoyance and the 54 dB(A) contour, for example.

Also, in our view, if professional, independent social surveys should establish that populations living in, say, Chelsea or Battersea or Esher do experience at least low levels of community noise annoyance, and accepting that it is a non-contentious fact that these areas are within the 54 dB(A) Leq contour, then there would be as close a correlation as anyone has any right to ask for between the onset of community noise annoyance and a lower contour value than 57 dB(A).

## 8 The significance of recalibrating the contours

If we stay with Dr Ollerhead's own account of the limitations of the Leq system as a means of calculating the population experiencing community noise annoyance from Heathrow today, we have to accept that Leq contours have only weak statistical relationships with annoyance and that it would be desirable to recalibrate the contours by measuring community noise annoyance directly. Clearly, a recalibration may produce a different set of contour values being associated with the familiar levels of low, moderate and high annoyance. We believe that such a recalibration would in fact produce a correlation of low annoyance with a lower Leq contour value than 57 dB(A). I asked Ms Duthie some questions to explore the conclusions which would follow should this hypothetical recalibration actually take place. She agreed that such a recalibration could produce a correlation between the onset of community noise annoyance and a lower contour value than 57, although she believed it could also be higher. She also, very importantly accepted that community noise annoyance at different airports may correlate with different contour values – and that the same may apply at different locations around Heathrow itself:

“I am happier to sign up to the proposition that it may be lower than 57, but it may also be higher. It may be different at Heathrow than in other places. It may be different in different areas around Heathrow.” (Day 342, page 166, lines 6 to 10)

Here, Ms Duthie seems to join the camp doubting the close correlation between the onset of community noise annoyance and the 57 dB(A) contour, leaving Ms Jackson as the sole believer in its existence.

When I asked Ms Duthie to consider the conclusions which would have to be drawn should the recalibration at Heathrow generate a correlation between the onset of community noise annoyance and the 54 Leq contour, using an estimate for the 54 Leq population count of 870,000, at first she did not agree that we would have to

conclude that the noise climate had in reality been worsening during the past ten years. She said:

“We would have to draw the conclusion that the noise climate had been improving.” (Day 342, pages 167 line 25 to 168 line 1)

However, I repeated the chain of questions, probably becoming somewhat clearer second time round, and this time Ms Duthie did agree. My question was:

“We would be right to draw the conclusion, would we not, that in the ten years since the mid-1980s, the noise climate around Heathrow has been worsening?”

Ms Duthie replied:

“Yes, we would, in general terms. You would have difficulties in making historical comparisons because you would have changed the entry point.” (Day 342, page 169, lines 14 to 19)

When I then linked this hypothetical recalibration back to question the validity Ms Jackson’s statement about the noise climate improving at Heathrow, it was clear that Ms Duthie was concerned that the Leq system as such should not be rejected as unreliable. I think it is important that I was showing that such serious reconsideration of the magnitude of the noise problem could arise, not from rejecting Leq and substituting some alternative, but merely by making fairly small adjustments to the specific contour values being assigned different levels of community annoyance. (Day 342, page 172 lines 11 to page 173 line 6)

## 9 Evidence in favour of recalibrating the contours at lower dB(A) values

My discussion so far has remained largely at the theoretical level, even at the hypothetical level. We have felt it essential to probe the degree of confidence which can be placed on the Government’s application of the Leq system precisely because it has been used to dismiss evidence based on the direct experience of people.

We believe that during the noise topic the Inquiry heard compelling additional evidence from large numbers of credible witnesses, which confirmed the statements in the earlier public sessions and the thousands of letters received, that community noise annoyance from Heathrow has indeed been increasing in the past ten years or

so and has reached levels which justify the classification “environmental emergency”.

There would be nothing gained by me analysing this evidence in detail. The Inspectors have heard the evidence and will draw their own conclusions. However, the following aspects are worth highlighting.

A large number of personal statements and letters come from people living within areas officially described as experiencing low annoyance. Most of these people consider they experience severe annoyance, which has worsened in recent years as flight numbers have increased. This suggests that a recalibration of the contours would change the label applied to the 57 Leq from low annoyance to at least moderate annoyance.

Significant numbers of people giving evidence live outside, sometimes far outside, the official noise contours. Again, most say the problems of noise have increased in recent years. This supports the argument that a recalibration of the contours would show the onset of community noise annoyance occurring at contour levels well below 57 Leq.

Negligible numbers of witnesses have told this Inquiry that their experience corresponds with the description given by the Government, that the noise climate has been improving in recent years.

Neither BAA nor the DETR chose to cross-examine personal witnesses and we recognise that this was in order not to intimidate or alarm people who are not accustomed to the rigours of cross-examination. However, the Inspector did in certain cases test the reaction of witnesses to the Government statements that the noise climate has been improving. It was notable that in no cases did witnesses state that this information reassured them and persuaded them that they had been in error in their previous statement that they felt the noise had been getting worse. Rather they tended to assert that the Government statements were inaccurate.

The claims that noise has been worsening are not made in a vacuum. They relate to significant undeniable changes in the physical sources of noise. Obviously, the most important is the increase in number of flights. But, there are other knock-on effects which act as a multiplier intensifying noise annoyance in particular areas. The increase in numbers of landing aircraft has required operational changes, including lining aircraft up on the approach path further and further out from the airport. Also

the CAA has reduced the permitted separation distances between landing aircraft, in accordance with its blithely irrational policy as economic regulator of cutting the charges to use the most congested runways in Europe, thus intensifying demand from airlines, and then meeting this demand as safety regulator by cutting safety margins. Many witnesses in parts of London well to the East of the 57 Leq contour described how the frequency of flights has changed quite dramatically just in the last few years. These people are experiencing for the first time the impact of a concentrated stream of aircraft, which has been the unfortunate reality for people living closer to the airport for decades. We note that Dr Cavalla's proof of evidence on the impact of landing noise on affected communities and the inevitability of this worsening as a result of increased flight numbers and larger aircraft with a fifth terminal, has not been criticised in BAA's position statement – presumably because Dr Cavalla's evidence derives largely from BAA material, most importantly BAA 703, which shows that in the future approach noise will become a greater proportion of the noise impact on the community. 1

The Inquiry cannot have a current social survey. However, a public inquiry is in itself a survey of public opinion, certainly an inquiry of the thoroughness of this one, which has generated such high levels of public involvement. The Inquiry therefore has substantial evidence that community noise annoyance has been increasing and has passed well beyond the levels which the community should be expected to tolerate.

There are two additional sources of systematic evidence on the extent of community noise annoyance today. One is the evidence collected by Mr Rolls in HAC 64. These amateur surveys show high levels of annoyance well outside the official noise affected areas. The surveys had a simple and straightforward methodology and there is no reason to doubt that they faithfully reflect the views of the samples of people interviewed. To argue otherwise is to claim that the people of Chelsea or Camberwell chose to lie about their experience of aircraft noise because they knew the survey would be submitted to this Inquiry.

We also have the professional BAA survey I referred to in my opening statement for this topic (BAA 718, para 3.1.2). This is powerful independent evidence of the severity of the noise problem in noise affected areas, where aircraft noise is mentioned as a main issue of concern to residents by between 30% and 49% and three times as frequently as any other issue such as traffic or crime. Ms Duthie's dismissal of the notion that these results demand urgent action to reduce community noise annoyance are perfect examples of the complacency of the DETR, a

complacency used to justify inaction. When re-examined by Mr Randle, Ms Duthie said that the survey was “within a specific area close to the airport and under the approach paths” and

“In general terms, it is not surprising that in these areas a significant proportion of residents find aircraft noise to be the issue which most concerns them.” (Day 344, page 86, lines 22 to 25)

It is not, of course, a major new discovery that it is people who live in areas overflowed by aircraft who show some concern about aircraft noise. However, the survey covered areas over ten miles either side of Heathrow and the significant point is not that aircraft noise is mentioned, but that it is mentioned so frequently and ahead of any other issue. Other parts of Government, even other parts of the DETR, treat issues of widespread concern such as traffic congestion and pollution or crime as matters requiring urgent attention.

In our view, this extensive evidence of the extent and intensity of community noise annoyance and its causes simply cannot be ignored on the basis that a survey 16 years ago might still apply today or inaccurate statements by Ministers and civil servants that there is scientific support for claims that community noise annoyance is declining.

BAA in its position statement invites you Sir to ignore the large numbers of letters sent to you in response to this Public Inquiry from people living outside the 57 dB(A) Leq contour as indications that low levels of community noise annoyance may begin further to the East of Heathrow than Fulham, for example. (BAA 2005B, page 73, para 14. We trust, as always, that you will form your own judgment on this issue.

BAA criticises the redrawn contour for the onset of community noise annoyance produced by Mr Rolls in HAC 64 on the grounds that it cannot be compared to a 16 hour Leq dB(A) contour, specifically the 54 and 57 contours (BAA 2005B, page 72 paras 8 and 9). However, this criticism merely betrays determination to focus on noise energy contours, which have a weak correlation with community noise annoyance, rather than direct evidence giving an indication of the extent and intensity of community noise annoyance in 1997. Mr Rolls' contour is an estimate of noise annoyance, it is not an attempt to reproduce average noise energy for a certain number of hours during the day. And community noise annoyance is the issue which noise control policy must concentrate on. BAA see it as a criticism of Mr Rolls that he stated that he did not know whether we should use the 54 Leq contour (BAA 2005B, page 71, para 7). But Mr Rolls was simply giving the honest answer, which is entirely consistent with HACAN's view, that nobody knows today what Leq contour value corresponds with the onset of community noise annoyance. HACAN is anyway less interested in Leq contour numbers than in measuring community noise annoyance properly through social survey procedures.

Finally on Mr Rolls, it is not accurate to claim that is amateur social surveys are biased on the grounds that they surveyed members of residents associations

affiliated to HACAN (BAA 2005B page 74, para 15). Mr Rolls made clear that, although residents associations in particular areas provided the location for his research, he then surveyed all people living in a specific area, not only members of the association concerned.

## 10 Implications for the assessment of Terminal 5

I have spent considerable time arguing that this Inquiry should conclude that the noise problem at Heathrow has been worsening significantly in recent years for two reasons. The first is simply in order that the scale of the current problem should be properly appreciated. This in itself is a strong argument against allowing a further major expansion of Heathrow, which even on BAA's own evidence would worsen the noise climate for a large group who we argue already suffer excessively: those living under 20 miles of landing approaches to the East of Heathrow across the capital. The expanding contour to the East in BAA 66 Figure 10 is, of course, before we add back in Concorde, the aircraft which refuses to disappear and is the opposite of the much-heralded NLA, which never leaves the drawing board. I must say that I feel the Inquiry should have sight of revised contours for 2016 with Concorde still in operation.

The second reason is that if it is accepted that the onset of community noise annoyance occurs far further out than the 57 dB(A) Leq, this implies that the Leq contours do need to be recalibrated. The reason for this is not simply the passage of time, or changes in sensitivity to pollution. We argue that the main reason is the change in the physical nature of the noise created by Heathrow: the increase in flight numbers and the elongation of the approach paths. This objective change is also why we would reject the alternative explanation which Mr Vandermeer rightly identified as possible in principle, namely that the weak correlations had resulted in errors in the contour values determined in 1982 (Day 342, pages 169 to 170). The close correlation of community noise annoyance with the 57 dB(A) Leq contour claimed by Ms Jackson and Ms Duthie would have been broken.

Once the fundamental principle is accepted that a new yardstick may be required in a new situation at Heathrow, then Dr Ollerhead's claim that we can at the very least use a fixed contour to compare two future situations at Heathrow becomes invalid. As I argued at the beginning of this statement, the past ten years are a real life trial of the impact on the community of expanding Heathrow's capacity by approximately 30 million passengers per year. If the reality is that the Leq contours need to be relabelled today, this argues strongly that during a similar expansion resulting from

a fifth terminal over the next 20 years further recalibrations would be required. If the BAA No T5 case were to apply, then we could probably use any new recalibrated contours which we established today for at least part of the period up to 2016 – because the operational characteristics of Heathrow would not have changed significantly. However, the With T5 situation would inevitably entail significant changes in the operational mix at Heathrow, some combination of an increase in flight numbers and an increase in average size of aircraft, which would mean that we could not assume that noise-response relationships were unchanged. Therefore, we argue that the Inquiry must reject arguments, based on applying identically calibrated Leq contours in 1998 and 2016, that adding 30 million passengers per year will have a negligible impact on community noise annoyance.

This argument applies just as much in the BAA T5 scenario as in the HACAN T5 scenario. We expect a significant increase in flight numbers and only a modest increase in average size of aircraft – parallel to the experience of the past ten years. However, a very significant increase in average aircraft size, and perhaps new larger aircraft, with a smaller increase in flight numbers would also constitute a significant change in the operational practices at Heathrow, which could be expected to impact on the relationship between noise energy and annoyance, requiring a new social survey and a new calibration of the contours. If 747 type aircraft make up a significantly higher proportion of flights, this will of itself increase community annoyance. It is relevant in this context to note the immense efforts being made by British Airways to prevent a modest reduction in departure noise limits under consideration by the Government, which would have an effect only on 747 aircraft and any future large aircraft designed to have equivalent noise outputs. With the modernisation of the Heathrow airline fleets to Chapter 3 standards almost complete, there is little prospect of reductions in average noise levels, particularly if average size increases.

Therefore, Sir, we argue that you can have no reliance on future projections of community noise annoyance based on comparing 57 Leq contours. Your best guide to the consequences of expanding Heathrow's capacity by 30 million passengers is the evidence from the community about how annoyance has increased during the past ten years, when capacity increased by 27 million.

## 11 Night Flights

I would not wish to conclude HACAN's position statement on air noise, without making at least a brief reference to the intense annoyance which hundreds of

thousands of citizens experience as a result of night flights at Heathrow. I hope that the succession of witnesses and the many letters on this issue have convinced you, Sir, of the reality and seriousness of this problem.

The conclusions which I think I can most usefully draw here relate again to the use, or in our view abuse, of so-called scientific evidence by the DETR and its predecessors.

Mr Buxton's cross-examination of Dr Ollerhead clearly confirmed that the system of regulating the noisiness of aircraft landing at night involves a massive distortion of their impact on people living under the flightpaths by the deduction of 9dB from the certificated figures. Dr Ollerhead has his own justification for this manipulation of the basic data, but does not disagree with the statement that people under the flightpaths actually experience the unadjusted noise levels (Day 335, page 52). We all know that there are no regulations for landing aircraft noise, but we are in the quite unacceptable situation where, because of this adjustment, aircraft are being allowed to land at Heathrow at night which would infringe the noise regulations if the departure noise limits were also applied to landing noise.

What this translates into is a confirmation of the reality of the everyday experience of thousands that a jumbo jet six or seven hundred yards above your house at 4 in the morning is extremely loud and certainly loud enough to disturb your sleep.

But the most interesting aspect here is how, again, civil servants and Ministers continue flatly to deny the experience of people and their democratic representatives by calling on scientific evidence, which in reality does not justify their position.

Ms Duthie's proof DOT 2000 was a good example of how the DETR misrepresents the problem of night flights. There was no description of the extent of community concern which has been expressed to her department. There was simply the repetition of the conclusion from the Ollerhead study:

"that with noise levels in the range 80-95 dB(A) the likelihood of the average person being awakened is about 1 in 75 and that the number of disturbances caused by aircraft noise is so small that it has a negligible effect on overall normal disturbance rates." (DOT 2000 para 4.16, page 18)

There was no reference to the fact that this conclusion is hotly disputed.

The cross-examination of Dr Ollerhead revealed that the situation is not nearly so clear cut as Ms Duthie's reference seems to imply.

We have made clear that HACAN considers there are serious flaws and limitations in Dr Ollerhead's research, most importantly its inability to reflect the problems of continued sleep disturbance from subsequent aircraft once someone has been awakened in the early morning by a noisy aircraft. However, even staying within Dr Ollerhead's conclusions I showed that they were consistent with high and serious levels of sleep disturbance in the particular case of Heathrow. I applied his ratio of 1 in 75 noisy flights causing sleep disturbance to a typical morning under the Heathrow approach paths and showed that under perfectly realistic assumptions about operational practices and the duration of the night period, this was consistent with half the population under an approach path being woken up every night when the aircraft were using that approach. I said:

“Actually, that for a real live person, is quite a high level of sleep disturbance from aircraft, would you not agree?”

Dr Ollerhead replied:

“Yes, but it has to be seen in the context of the total number of awakenings, but I would not argue with your analysis.” (Day 335, page 156 line 25 to page 157 line 5)

When I went on to ask Dr Ollerhead whether such levels of sleep disturbance might not cause stress and consequent possible illness, he replied that he did not consider the research showed the possibility of health effects from sleep loss. However, he pointed to the extremely significant caveat in the last sentence of his report (CD 56, page 35) that it does not provide information about community annoyance from aircraft noise at night and that such annoyance could have negative health impacts (something for which Professor Holland believes substantial evidence already exists). The most important comment that Dr Ollerhead made about his study was that this is one of the reasons why he and his colleagues have moved the focus of their research about night noise from disturbance to annoyance. (Day 335, page 158 lines 14 to 17) Dr Ollerhead agreed with me that community annoyance is high in relation to night flights. (Day 335, page 121 line 23 to page 122 line 11) He confirmed that the Sleep Disturbance Study tells us next to nothing about annoyance. (Day 335, page 123, lines 19 to 21)

If the Sleep Disturbance Study had concluded that sleep disturbance from aircraft at night did not occur at all, then this limitation would not be significant – there could be no annoyance if there was no disturbance. However, Dr Ollerhead agreed that disturbance rates at Heathrow could be experienced as high and that disturbance will cause annoyance which may have health effects. At any rate what matters in relation to night flights he now agrees is community noise annoyance and this, as with daytime noise, can only be assessed by social surveys. (Day 335, page 124 line 25 to page 125 line 3).

There is absolutely no doubt that those social surveys which do exist already show and any future surveys will show very significant levels of community annoyance about night flights.

Therefore the sum total of the Government's own scientific expert's evidence about the noise problem at Heathrow is that, disturbance of sleep may be high, up to 50% of the population under the flightpaths being woken every night; that we need to move on from the Sleep Disturbance Report to new studies into community noise annoyance, which as far as we know do not yet exist, and that annoyance may well have negative health impacts.

We can only interpret the new night flight consultation from the Government as tantamount to an acceptance of the intense criticism of the Sleep Disturbance Study since it proposes commissioning new research into the issue. In principle, we welcome this development. It is significant also in relation to the argument I put forward in my own proof HAC 65 that, if this Inquiry rejected the scientific evidence produced by Dr Ollerhead claiming that night flights caused negligible disturbance, as we believe it must, then serious questions must also be raised about the reliability of the evidence put forward by Dr Ollerhead that daytime noise annoyance is declining, when the community strongly expresses the contrary view. I submit that now the Government itself has effectively agreed that it can no longer rely on the Ollerhead sleep study.

While we welcome the suggestion of new research, it is remarkable to see the DETR officials in action, repeating their pattern of commissioning research which is of no relevance to the issue of concern. I established with Dr Ollerhead that for night flights, as with daytime noise, the focus of research and controls should be community noise annoyance. The DETR proposes to conduct research into disturbance again. The research is not to be conducted at Heathrow, but Manchester. The main problem at Heathrow is early morning 747s. There are few 747s into

Manchester. Therefore the research will be valueless and will merely ensure continued dispute, while the night flights are allowed to harm the quality of life of thousands – are we being too cynical to wonder whether this is precisely the intention of the proposals?

I will briefly note that the French “MPs” we met recently described that night flights are a serious problem at Charles de Gaulle also. But, in the context of this inquiry, the community impact of night flights at the two airports cannot be compared. Heathrow night flights cause serious annoyance and distress to far larger numbers of people, due to the airport’s location.

Sir, we believe that Dr Ollerhead’s evidence therefore supports the case we have argued that night flights are a serious problem at Heathrow, which needs to be taken into account when assessing the overall noise burden. Permitting a fifth terminal will on BAA’s own evidence increase noise during the day in areas which already suffer most intensely. Permitting a fifth terminal will on British Airways’ own evidence mean a significant increase in noise pollution during the hour 6am to 7am, which most people consider within the eight hour night period during which the community should be protected from noise pollution. Of course, BAA’s evidence on the supposed small community noise annoyance impacts of T5, based on contours, explicitly ignores this substantial increased noise impact because the 16 hour contours do not include 6am to 7am.

British Airways has the honesty not to claim that Terminal 5 will improve the night noise problem. Nor does BA seek to maintain the indefensible position that night flights do not cause high levels of suffering to the community. Rather, BA precisely exploits this knowledge to threaten the community with higher levels of suffering if it is not allowed to get its way with Terminal 5. We note in BA 2100 another not very veiled threat from BA: that the company will seek to end runway alternation if T5 is not permitted (BA 2100 page 12, para 3.4). I have to say that BA 2100 is the most unpleasant document I have read in connection with the T5 proposals and that it does no credit to a leading UK company which claims to take its environmental and community responsibilities seriously.

I will briefly digress to comment on British Airways’ Inquiry Note BA 2073 in relation to night alternation, specifically during the hour 6am to 7am. Despite the Government’s claims to control noise during this period and its statement that “The Government supports the introduction of runway alternation at night in principle” (CD 247ii, Annex 5, para 7), it has allowed permanent mixed mode to operate under

the pretence that this is tactical. British Airways claims in BA 2073 that alternation should not apply during this period because the night alternation experiment requires one runway to be used for both take-offs and landings and to apply this between 6am and 7am would severely reduce the possible number of landings. But clearly in practice alternation during this hour would need to operate on the same basis as daytime alternation, with one runway for landings and another for take-offs when on westerly operations, and there is no reason why this should not apply. Although alternation between 6am and 7am would involve some reduction in current numbers of landing aircraft, BA is exaggerating its extent because departures would in practice be accommodated on the alternate runway. BA's evidence on this point gives the lie to the claim that TEAM is in any way tactical. BA regards mixed mode in the night period/early morning as a right.

## 12 Conclusion

Sir, in this statement I have focused in detail on the scientific evidence on the impact of aircraft noise on people. I believe that the evidence from the community and its democratic representatives about the seriousness of the noise problem, how it has worsened and how it will inevitably deteriorate further with a fifth terminal speaks for itself. I have felt that it would be most useful to try and demonstrate our view that it is inaccurate to consider that the objective scientific evidence about community noise annoyance is in conflict with the experience of the community. There is no doubt that the DETR believes that the scientific evidence contradicts the experience of the community, but I hope I have shown that the DETR has a seriously mistaken and distorted view of what the scientific evidence does actually tell us. Ms Jackson has confirmed that the Government's policy is to "continue our efforts to do everything practicable to improve the noise climate over time". (DOT239, column 813) There is agreement that the fundamental measure of the noise climate is community noise annoyance. We believe that taking all the evidence on noise impacts together, there can be no doubt that to allow a fifth terminal would be contrary to the Government's policy of doing everything practicable to improve the noise climate:

- It is accepted by all parties that T5 would mean more night flights – this is not an improvement in the noise climate
- It is accepted by all parties, except BA, that T5 would mean more flights during the day – this is not an improvement

- It is accepted by all parties that T5 would mean on average significantly larger aircraft using Heathrow than without T5 – this is not an improvement
- BAA's own evidence shows significantly more people suffering from air noise with T5 than without T5 – this is not an improvement
- In HACAN's view, the additional flights from T5 cannot be accommodated without ending runway alternation – this is not an improvement

In your guidelines to us on the issues you considered important during this topic, you concluded by saying that ultimately you will need to include your assessment of noise issues in the wider overall balance. We are very hopeful that the combined efforts of the many witnesses both amateur and expert from many parties and individuals have convinced you that the noise consequences of permitting a fifth terminal must weigh very heavily in that balance. I would like to make a brief comment about some of the other elements in this balance.

Heathrow today is operating at approximately 58 million passengers per year. If we accept the BAA passenger figures with and without Terminal 5, the population around Heathrow has experienced a live experiment showing what a quarter of Terminal 5 would mean. Passenger numbers were 50 million in mid 1994 and we are already a quarter of the way from 50 to 80 million. But, it has been noticeable that many witnesses, particularly some distance from the airport, have reported a significant increase in noise annoyance precisely during this period – for several noise only became a noticeable permanent problem from 1995, the year this Inquiry opened. Therefore, you have direct evidence from the community showing how the expansion which would be associated with a fifth terminal would act to increase community annoyance.

But, of course, HACAN does not remotely accept BAA's passenger or flight figures in its Terminal 5 proposals. We believe, that these figures are blatant under-estimates of the true scale of the expansion of Heathrow and the environmental consequences. The 50 million figure for Heathrow in 2016 remaining a four terminal airport is a ludicrous prediction by BAA, shared by none of the other parties to this Inquiry. BAA keeps to this figure because to allow a more realistic higher figure would mean adding 30 million passengers to that higher figure with a fifth terminal, confirming that the with Terminal 5 figure is higher than 80 million. BAA now predicts a remarkably precise 63.5 million passengers as the temporary maximum for Heathrow with four terminals. In our view, looking at past patterns, we must assume that a round figure of 65 million passengers per year is very likely if Heathrow remains with four terminals and that 70 million passengers per year is quite possible.

These estimates then have significant consequences when weighing up the balance of arguments for and against a fifth terminal. It is in our view clear that BAA will in reality achieve at least 50% and possibly two thirds of the expansion which it claims it is seeking with a fifth terminal without a new terminal. This means that between half and two thirds of the claimed economic benefits, whatever they may be, will accrue to BAA and others even if a fifth terminal is rejected. Therefore the weight on the side of the balance concerned with economic benefits from a fifth terminal must be reduced by between half and two thirds. Of course it might be argued that if Heathrow became larger than 80 million passengers with a fifth terminal this would be an additional economic benefit, but this is not part of the case being presented to you by BAA.

But on the other side of the balance, it is equally clear that if a fifth terminal is approved, its 30 million capacity will be added to the No T5 capacity, leading to an airport handling something in the region of 95 to 100 million passengers per year. Therefore the environmental consequences of permitting a fifth terminal will be significantly greater than those outlined in BAA's case.

Therefore, with the benefit side of the balance significantly reduced, while the human costs side must be increased, the overall balance must swing even more decisively towards a decision to reject a fifth terminal.