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SUSTAINABLE DEVELOPMENT
COMMISSION

The impacts of air transport on London

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introduction

Within a generation flying has become a common experience for Londoners and when we think of flying we often think pleasant thoughts of sunny holidays and exciting journeys. But there is also a downside to flying, most noticeably for those living near airports.

London's five main airports (Heathrow, Gatwick, Stansted, Luton and London City) account for the majority of air passengers and freight in the UK, and have a key role to play in the development of the national economy, and tourism in particular.

The London Sustainable Development Commission asked consultants SKM to examine the economic, social and environmental impacts of air transport, focusing on London. Their research includes a detailed analysis of the Civil Aviation Authority's 2002 passenger survey and is available at www.london.gov.uk/mayor/sustainable-development/susdevcomm_reports.jsp

This report sets out some findings from the earlier research together with the Commission's conclusions. The Government's White Paper The Future of Air Transport (December 2003) has set out a policy to expand considerably the capacity for air travel, particularly in the South East. We hope that this report will inform decision makers so that our transport systems are planned as sustainably as possible, reducing the negative impacts and providing benefits more widely.

the impacts of air transport on London

Key findings

- Aviation is important to economic activity in London, especially tourism, but only a third of passenger air traffic is important to economic activity.
- Heathrow can remain a major airport without an extra runway.
- Major London – Scotland rail links should be improved.
- Londoners tend to use an airport near to where they live.
- The wealthy fly much more than the poor and low-cost flights have not changed that.
- Ethnic minorities make different use of air travel and may not benefit as much as other groups from low-cost travel.
- There is not enough information about differential impacts of air travel on different groups.
- Aviation currently accounts for just over 3.5 per cent of total global carbon dioxide emissions, but by 2050 that could rise to 15 per cent.
- Environmental degradation is suffered by people different from those who enjoy the benefits of flying, and it is particularly concentrated on the areas around airports.
- The Government should increase taxes to ensure that air travellers pay for the full costs of their travel on others.

Conclusions

- The Government should recast their projections of the growth in air travel.
- For London's airports, flights for business and inbound tourism should be prioritised.
- The case for expansion of airports in the South East has not been made.

air travel from London's airports

Between 1992 and 2002, passengers at London's airports increased from 69 mppa (million passengers per annum) to 117 mppa, accounting for 62 per cent of total UK passenger traffic.

table 1 Terminal Passengers at UK Airports, 1992 and 2002

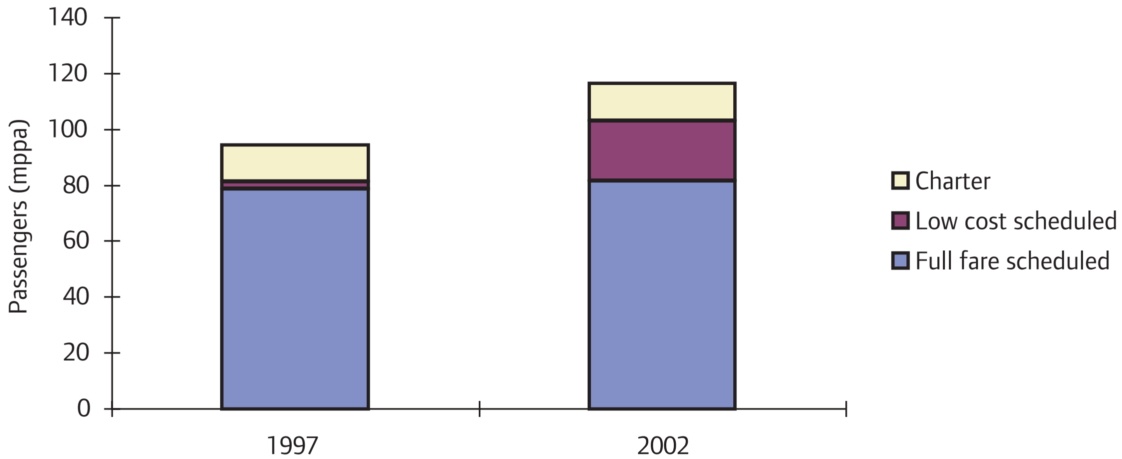
Mppa	1992	2002	Growth
Heathrow	45.0	63.0	40%
Gatwick	19.8	29.5	49%
Stansted	2.3	16.0	597%
Luton	1.9	6.5	242%
London City	0.2	1.6	700%
Total London area airports	69.3	116.7	68%
% of UK total	65%	62%	
Other UK airports	36.8	72.1	96%
Total UK airports	106.1	188.8	78%

source Civil Aviation Authority Airport Statistics

- The number of passengers using London airports has increased by 68 per cent in the decade to 2002, and the number of air transport movements (ATMs) by 65 per cent.

- Low-cost scheduled services accounted for 85 per cent of the total growth in passengers at the airports in the London area in the past five years (see Figure 1).

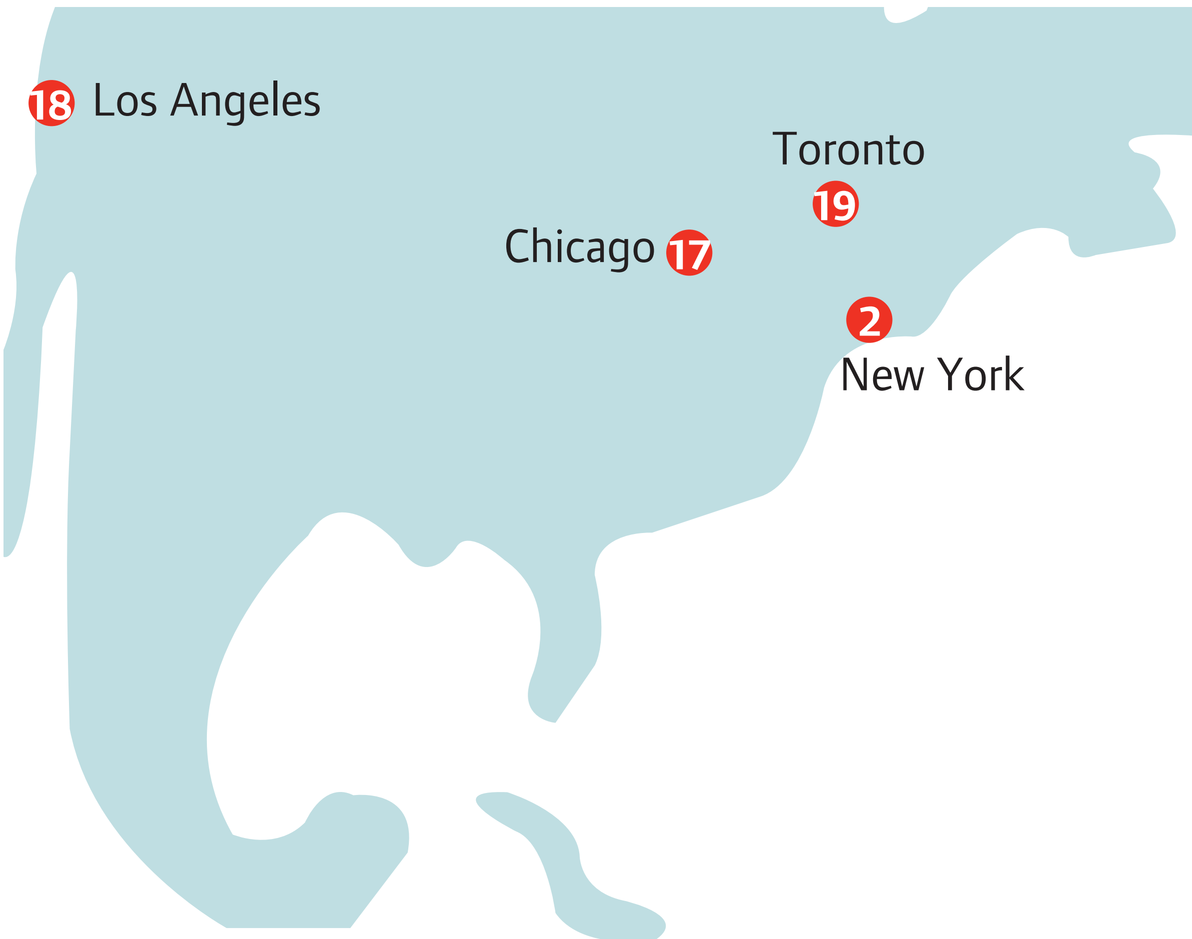
figure 1 Passengers at London airports by type of flight, 1997 and 2002



source Civil Aviation Authority Airport Statistics, 1997 and 2002

- The number of ATMs at Stansted increased by nearly 250 per cent between 1992 and 2002.
- Over this period, the number of passengers per ATM has increased from 108 to 122, with Heathrow still having the highest average at 137.
- Travel on holiday account for 36 per cent of all flights taken by London residents and 51 per cent by other UK residents.
- The top 20 destinations from London's airports account for over a third of all passenger movements.

figure 2 Top twenty destinations from London's airports



source Civil Aviation Authority Airport Statistics, 2002

Five, and arguably six of the top ten destinations, Amsterdam, Edinburgh, Glasgow, Paris, Manchester and possibly Frankfurt could potentially be served by high speed rail rather than air, either at present or in the future. These services represent a total of 16.9 mppa – equivalent to 14 per cent of all London airport traffic.

The SKM research shows that some 350,000 trips per year are made by London residents to and from Scotland to visit friends and relatives. Between London, and Edinburgh and Glasgow, air has three-quarters of the combined air and rail market. On routes where rail should be viable, air has a high share of traffic. The lack of a high speed line coupled with poor operator performance means that air travel may often be preferred to rail, particularly if time is at a premium, for example a weekend away.

table 2 Comparison of key routes where air and rail compete

Corridor	Rail distance (kms)	Air distance (kms)	Typical rail journey time	Typical air journey time	Typical air journey time incl city centre access and check – in *	Rail market share as proportion of total Rail+Air market
London – Glasgow	645	555	5.20	1.15	3.45	25% (estimate)
London – Edinburgh	632	535	4.20	1.15	3.45	
London – Manchester	273	254	3.00	1.00	3.30	N/a
London – Paris	472	370	2.45	1.10	3.40	60%
(estimate)						
London – Brussels	340	329	2.30	1.10	3.40	60%
(estimate)						
Paris – Brussels	310	271	1.30	1.00	3.30	94%
Paris – Lyon	430	399	2.00	1.05	3.35	88%
Tokyo – Osaka	515	400	2.30	1.10	3.40	86%
Madrid – Seville	471	392	2.15	1.00	3.30	82%
Rome – Bologna	358	307	2.30	1.00	3.30	75%
Stockholm – Gothenburg	455	390	3.00	0.55	3.25	60%

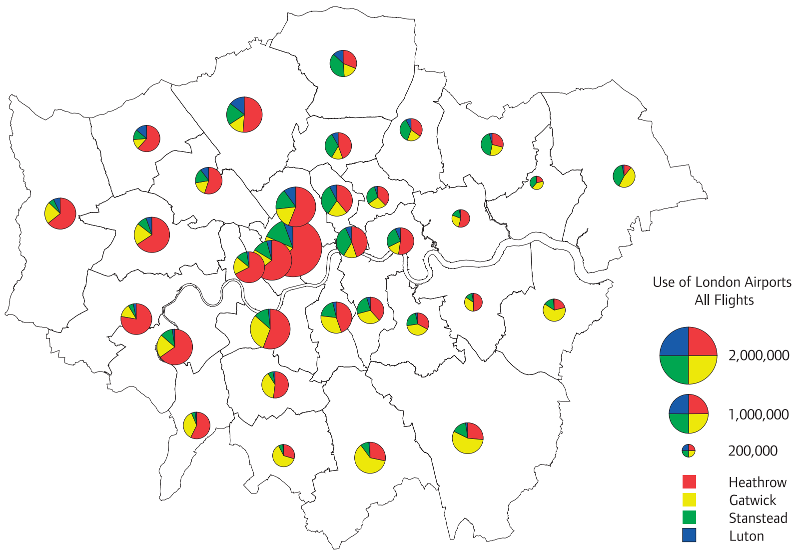
sources Data compiled and interpreted from: Regions to London and London's Airports study, Public Version, Booze Allen & Hamilton London 2000; Rail Facts Sheet No 16, Australasian Railway Association Inc, August 2000; OAG Official Airline Guides; External Costs of Corridors, a Comparison between Air, Road and Rail, Final Report, Air Transport Action Group, Zürich, 2002

note Assumes 2.30 hrs for access, check-in and egress at airports

Key finding: Major London – Scotland rail links should be improved so that they are a viable competitor to air travel. Consideration should also be given to making airports stations on such links so that rail can act as a feeder to the airport substituting for air links. Further research is needed on this. The SKM research shows that rail can achieve a very high market share if services of appropriate quality and speed are offered, for example 94 per cent between Paris and Brussels. This journey is of similar length to London-Manchester where 40 flights operate each day (see Table 2).

Key finding: Londoners tend to use an airport near to where they live (or start their journey) where there is a choice (Figure 3). This also applies to residents of the South East. On the other hand, some 49 per cent of all journeys by foreign residents travelling to Greater London finish in one of three Boroughs: the City of Westminster, Kensington and Chelsea and the City of London.

figure 3 Use of London airports by passengers, 2002



source Civil Aviation Authority Passenger Survey, 2002

Freight

Heathrow handles some 73 per cent of all freight handled by the London area airports. Stansted has recorded the strongest growth over the period (250 per cent in the decade since 1992). About 60 per cent of air freight is carried in the bellyhold of passenger aircraft, although the low-cost airlines tend not to carry freight. Air freight at London area airports is growing at a similar rate to passenger traffic, but it is increasing faster at regional airports. There is a need for further research on how freight interacts with passenger travel.

Key finding: Aviation is important to economic activity in London, directly through employment by airlines and indirectly through employment in tourism, by providing communications to business located in London, and for trade in services and goods.

- The aviation sector is estimated to represent some £4.1 billion (3.2 per cent of regional GDP) in the Greater London region.

- In 1998, aviation directly provided over 180,000 jobs in the UK of which 74,000 (40 per cent of the total) were in London, where the aviation sector accounted for about 2.2 per cent of all jobs. However, only about 39,000 of these employees lived in London.

- The study estimates that a further 37,000 people are employed indirectly and 17,000 further jobs are induced.

- The aviation sector makes a major contribution to the UK's balance of payments. In 1998, some £6.6 billion of services were exported requiring the direct use of aviation. A further £35 billion of UK exports were transported by air (20 per cent of total exports).

Most of our information about the economic impacts of aviation come from a study done by Oxford Economic Forecasting (OEF) as part of the SERAS consultation process[1].

Key finding: Tourism is particularly important to London's economy. London is one of the world's major tourist destinations, both for leisure tourism and, increasingly for so-called business tourism, such as conferences and seminars.

- There were 28 million visitors in 2002, of which 12 million were by overseas residents.

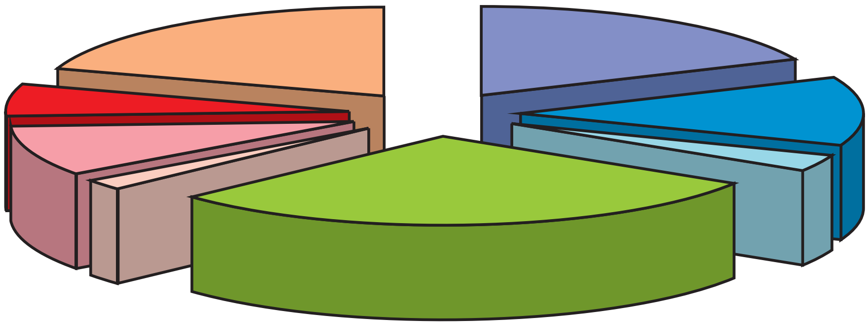
- Two thirds of visits from overseas are made by air, and these account for 81 per cent of spending.

- Tourism accounts for 272,000 jobs in London, seven per cent of total employment.

- Spending by London residents travelling overseas (£5.2bn in 2001) is broadly comparable to that of foreign residents visiting London (£5.8bn).

- In the case of UK residents as a whole, spending overseas (£25.3bn in 2001) significantly outweighs that of foreign residents in the UK (£11.5bn). This balance of payments deficit is growing.

figure 4 Passengers using London airports by reason for travel and residence, 2002



- Business travel to/from London and SE
- Leisure travel of non-UK residents to London and SE
- Business travel to/from rest of UK
- Leisure travel of residents of London and SE
- Leisure travel of non-UK residents to UK outside SE
- Leisure travel of residents of UK outside SE
- Transfer passengers: UK residents
- Transfer passengers: non-UK residents

source CAA Passenger Survey, 2002

Key finding: But only a third of passenger air traffic is important to economic activity. Business trips and inward leisure journeys make up only 34 per cent of the passenger traffic through London's airports (see Figure 4). Passenger transfers and outward leisure trips by people who live outside the South East make up 35 per cent of trips, but are of little benefit to London or the Londoners who are expected to bear the environmental costs.

Key finding: Heathrow can remain a major airport without an extra runway, although there would be opportunity cost in terms of employment. An airport hub can provide a range of connecting flights between different points by offering a large network of both short-haul 'feeder' services and long-haul routes. The network of services could be provided by the same airline or alliance, so that flights can be coordinated through online connections, or passengers might change from one airline to another ('interlining'). With a total of some 22.3 million transfer passengers in 2002, Heathrow is the only London airport which can be regarded as an international hub. Gatwick has approximately 16 per cent of transfer traffic, whilst the three remaining London airports, Stansted, Luton and London City has less than 10.0 per cent each.

Heathrow is an important international airport hub, particularly for long-haul to long-haul traffic. Heathrow has as many long-haul departures per day as Paris CdG and Frankfurt, but significantly fewer short-haul departures. Better rail links would support hub activity. From a geographical perspective, Heathrow provides an ideal location for hubbing between Europe and North or Central America, but it is less well suited for hubbing between Europe and the Middle or Far East, South America or Africa. The current proportion of transfer traffic at Heathrow (34 per cent) is significantly lower than that at Amsterdam Schiphol (41 per cent), Paris Charles de Gaulle (58 per cent) or Frankfurt (50 per cent).

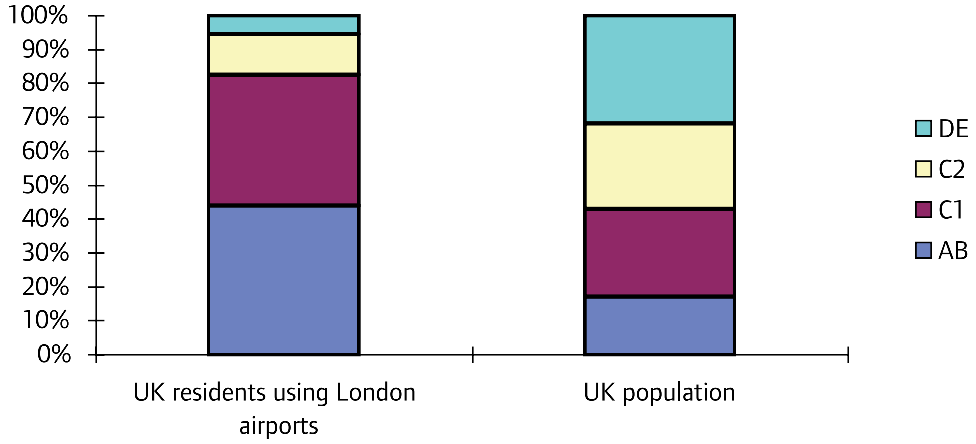
Heathrow is the most important London airport for business travel for UK resident accounting for some 62 per cent of all business trips. The majority of foreign residents using one of the main London airports travels through Heathrow (73 per cent), reflecting its worldwide status as London's main international airport. British Airways uses Heathrow as its main hub, but has significant service from Gatwick. Heathrow is also the main airport for BMI and Virgin Atlantic.

Key finding: The wealthy fly much more than the poor and low-cost flights have not changed that. A recent survey by MORI (for the 'Freedom to Fly Coalition', October 2002) showed that 55 per cent of the UK population had flown at least once in last 12 months, or put another way 45 per cent had not flown at all in the last year. Other research[2] has indicated that, of those flying, about one half made one trip, ten per cent flew at least three times and three per cent made more than six trips.

Comparison of the Civil Aviation Authority survey data in 1996 and in 2002 shows that there is essentially little change in the demographic profile of UK residents using London area airports, with slightly more ABs (rather than C1s) travelling in 2002 than in 1996. This finding suggests that, despite the growth of the low-cost sector, air travel does not seem to be becoming more socially inclusive.

Among UK residents using London's airports, those in social classes ABC1 accounted for nearly all (96 per cent) of all business travellers, with AB accounting for 61.4 per cent (17 per cent of population). London has a higher proportion of residents in classes AB (33 per cent), but they account for only 50 per cent of London-resident business passengers and 39 per cent of leisure passengers. In other words, use of air travel by Londoners is more evenly spread among the social classes than in the rest of the UK. Nearly a third of business travellers from the UK using Heathrow recorded an income of more than £85,000 per year.

figure 5 Social class of UK residents using London airports, 2002



source CAA Passenger Survey, 2002; TGI survey data

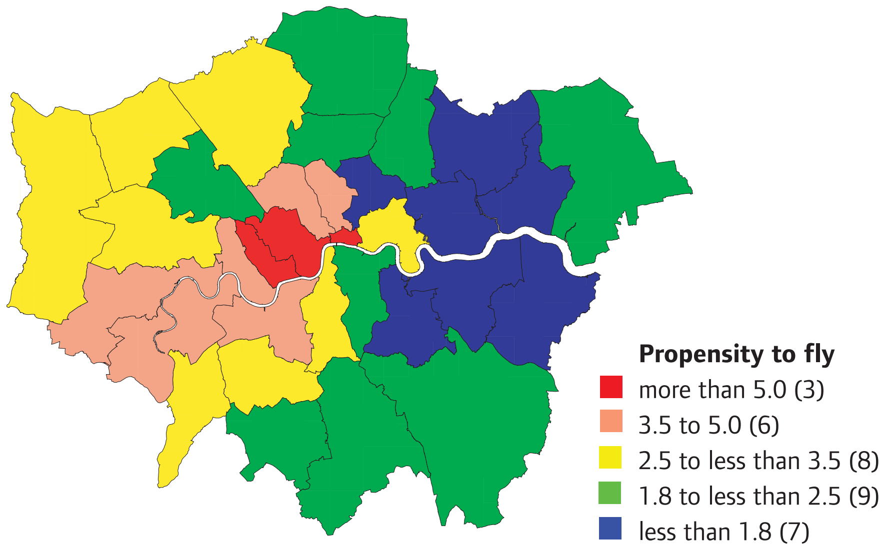
table 3 Definition of Social Class (or Grade)

A	Professional people, very senior managers, or top-level civil servants.
B	Middle management in large organisations, top management or owners of small business concerns with appropriate qualifications, principle officers in local government and civil service, educational and service establishments.
C1	Junior management, owners of small establishments, and all others in non-manual positions.
C2	All skilled manual workers, and those manual workers with responsibility for other people.
D	Semi-skilled and un-skilled manual workers, and apprentices and trainees to skilled workers.
E	Those entirely dependant on the state long-term, through sickness, unemployment over six months, old age or other reasons. Casual workers and those without a regular income.

source Market Research Society
note In general, retired people and their widows (sic) if receiving a pension remain in the same Class.

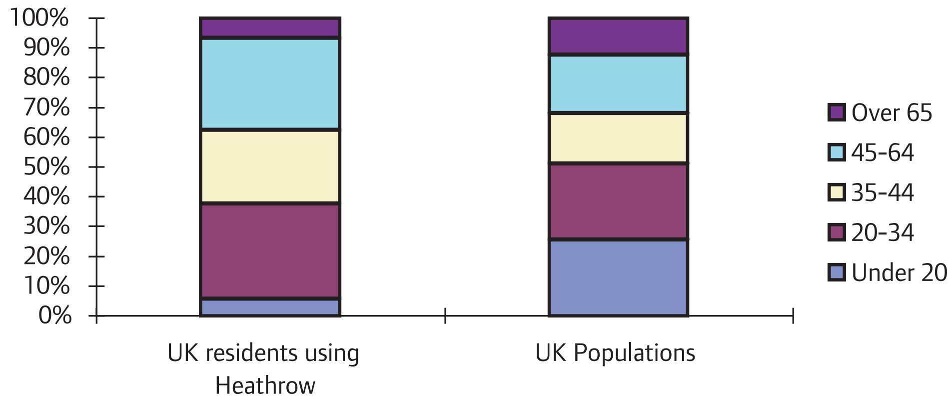
Consultants SKM derived the measure Propensity to Fly for the population of each London Borough, shown in the map (Figure 6). The measure represents the average number of passenger movements through the London area airports in 2002 per resident in each Borough. Every round trip consists of two passenger movements ie departure and arrival. Movements are based on the start (or end) of the journey, rather that people's home, so might, for example, represent a place of work for some journeys. The propensity to fly is higher in 'well-off' boroughs than in poorer ones.

figure 6 Propensity to fly by London borough, 2002



source CAA Passenger Survey, 2002

figure 7 UK residents using Heathrow by age, 2002



source CAA Passenger Survey, 2002

Adults between 20 and 65 years old account for 85 per cent of passengers (see Figure 7).

Key finding: Ethnic minorities make different use of air travel and may not benefit as much as other groups from low-cost travel. The research by SKM included some exploratory investigation of the use of air travel by two specific groups, the Bangladeshi and Scottish communities.

The study found that members of the Bangladeshi community are likely to travel to Bangladesh on average about once every two or three years, and also to Mecca for the Hajj (pilgrimage) on occasion. They are in general less likely to fly to European destinations or to the USA than other Londoners. Overall they are less likely to use low-cost airlines than other groups in London.

Key finding: There is not enough information about differential impacts of air travel on different groups. There is a lack of good data about air travel in terms of relating origin/destination to place of residence, and in terms of key passenger characteristics such as ethnicity. Little of the analytical work done by the DfT addresses the issue of the distribution of costs and benefits. Our initial research shows that ethnic minorities make different use of air travel than other groups. It is also likely that they are affected to a different extent by the economic and environmental impacts of air travel.

More research needs to be undertaken which examines the distribution of costs and benefits, economic, social and environmental, including an equalities impact assessment, in order to make a better judgement on whether and where to build further runways. Our exploratory research is just the start.

Key finding: Aviation currently accounts for just over 3.5 per cent of total global carbon dioxide emissions, but by 2050 that could rise to 15 per cent. Aviation is unique in that the largest proportion of its emissions occur in the upper atmosphere. The current fleet of subsonic jet aircraft cruise at approximately 8 to 12 km[3] above the Earth in a region of the atmosphere that is sensitive to some emissions from aircraft, with the result that the overall climate change effect of aviation is larger than its carbon dioxide (CO_2) emissions alone. CO_2 emissions from aircraft contribute 3.5 per cent of radiative forcing involved in climate change. The impacts of aviation on climate change have been investigated for over a decade. While attention initially focussed on carbon dioxide and the impacts of nitrogen oxides (NO_x) emissions on tropospheric ozone (O_3), more recently other impacts have been investigated such as contrails, particles and enhanced cirrus cloud cover. The greenhouse gas emissions from aircraft are not included in the Kyoto Protocol.

Key finding: Environmental degradation is suffered by people different from those who enjoy the benefits of flying, and it is particularly concentrated on the areas around airports.

Noise is the clearest environmental problem associated with aircraft and airports. But aircraft have become considerably quieter. At Heathrow, the number of people within the $57L_{Aeq}$ noise contour (the threshold used to indicate 'onset of community annoyance') in 2000 was 307,000. This figure has decreased significantly over the past 15 years due to improved engine technology. But DfT forecasts[4] suggest that by 2030 it will be between 278,000 and 332,000. The Greater London Authority's London Household Survey (2002) indicated that six per cent of respondents (equivalent to 180,000 households) regarded aircraft noise as a 'serious problem' in London. Sixteen per cent of respondents (490,000 households) indicated that they thought that aircraft noise was a 'problem but not serious'[5].

Aircraft produce a range of **air pollutants** including nitrogen oxides and particulates. Increased access traffic around airports also contributes to poorer air quality. It is likely that NO_x levels at Heathrow will exceed EU limits by 2015, even if a new runway is not built.

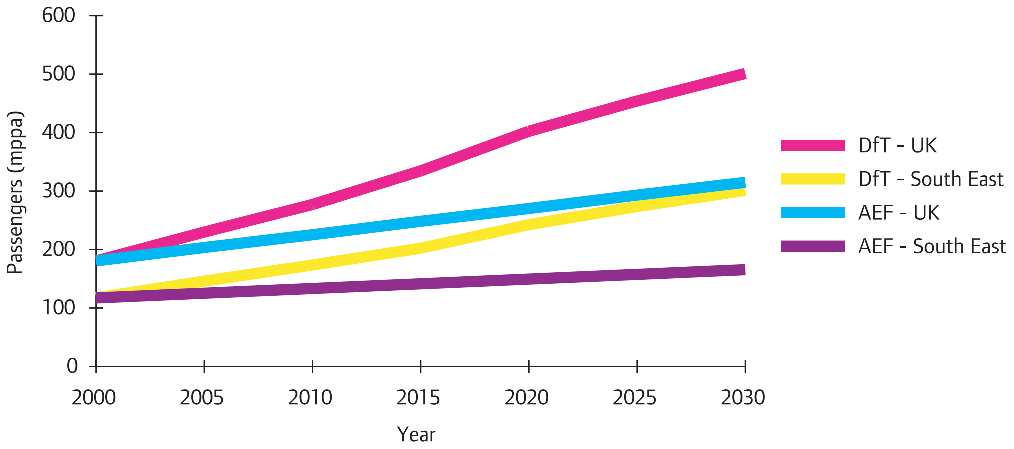
Other environmental impacts include
- impacts on habitats and biodiversity
- impacts on heritage
- safety
- congestion and other impacts from surface transport to and from airports.

Tax concessions

It is now widely appreciated that the air transport industry benefits from a number of tax concessions which mean that there is not a level playing field with other forms of transport. These include:
- no tax on aviation fuel
- no VAT on air tickets
- no VAT on consumer goods purchased at UK airports
- Duty Free sales.

Key finding: The Government should increase taxes to ensure that air travellers pay for the full costs of their travel on others. Air travel benefits from tax concessions, while there are external environmental costs.

figure 8 Comparison of air traffic forecasts



source The hidden cost of flying, Aviation Environmental Foundation, 2003; DfT

The conventional source of estimates of future demand for aviation are the Government forecasts published in the South East and East of England Regional Air Services Study (SERAS). These are forecasts based on extrapolating demand unconstrained by external factors.

An alternative analysis has been undertaken by the Department for Transport on behalf of the Aviation Environment Federation (AEF). This examines the potential impact of imposing an aviation fuel tax together with other tax measures on demand and suggests that traffic growth would be reduced to the point whereby no new runways would be required in the South East or anywhere in the UK before 2030.

Based on these findings, the Commission reached the following conclusions:

Conclusion: The Government should recast their projections of the growth in air travel allowing for the effects of removing subsidies and of ensuring that external environmental costs are included.

Conclusion: For London's airports, flights for business and inbound tourism should be prioritised, especially over transfer passengers and leisure flights by people living outside the South East. For business and inbound tourism, London needs at least one airport with first-rate international connections, and excellent public transport connections especially to the City and the West End. However, for Londoners and people living in other areas in the UK, it should be possible to provide services to popular tourist destinations at more local airports.

The benefits and disbenefits of flying are very unevenly distributed. Only a third of flights are highly valuable to London's economy. If the costs of flying reflected external environmental costs and subsidies were removed, the growth in demand would be reduced. A significant proportion of flights from London airports could be replaced by rail journeys.

Conclusion: Consequently, the case for expansion of airports in the South East has not been made.

References

1 The Economic Contribution of Aviation to the UK – Part 2, Oxford Economic Forecasting, 2002
2 'Holiday home boom fuels demand for runways', The Times, 12 August 2002. These figures, however, apply to the UK as a whole and no data is specifically available for London.
3 Turboprops fly at lower altitudes but are a small proportion of the global fleet
4 DfT (2002) The Future Development of Air Transport in the United Kingdom: South East.
5 GLA London Household Survey quoted in the 'The Mayor's Draft London Ambient Noise Strategy', March 2003

London Sustainable Development Commission information

The London Sustainable Development Commission was set up by the Mayor in 2002 to advise him on sustainability issues. It comprises 20 Commissioners representing economic, social, environmental and governance sectors. It is chaired by Pamela Castle and Ian Coull . Further details can be found on:
http://www.london.gov.uk/londonissues/sustainability.jsp

how to contact the Commission

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中文
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Hindi

यदि आप इस दस्तावेज़ की प्रति अपनी भाषा में चाहते हैं,
तो कृपया निम्नलिखित नम्बर पर फोन करें अथवा दिये
गये पता पर सम्पर्क करें।

Vietnamese

Tiếng Việt
Nếu bạn muốn bản sao của tài liệu này bằng
ngôn ngữ của bạn, hãy gọi điện theo số hoặc
liên lạc với địa chỉ dưới đây.

Bengali

আপনি যদি আপনার ভাষায় এই দলিলের প্রতিলিপি
(কপি) চান, তা হলে নীচের ফোন নম্বরে
বা ঠিকানায় অনুগ্রহ করে যোগাযোগ করুন।

Greek

Αν θα θέλατε ένα αντίγραφο του
παρόντος εγγράφου στη γλώσσα
σας, παρακαλώ να τηλεφωνήσετε
στον αριθμό ή να επικοινωνήσετε
στην παρακάτω διεύθυνση.

Urdu

اگر آپ اس دستاویز کی نقل اپنی زبان میں چاہتے
ہیں، تو براہ کرم نیچے دیئے گئے نمبر پر فون کریں
یا دیئے گئے پتہ پر رابطہ قائم کریں.

Turkish

Bu broşürü Türkçe olarak edinmek
için lütfen aşağıdaki numaraya
telefon edin ya da adrese başvurun.

Arabic

إذا أردت نسخة من هذه الوثيقة بلغتك، الرجاء
الاتصال برقم الهاتف او الكتابة الى العنوان
أدناه:

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਸ ਦਸਤਾਵੇਜ਼ ਦੀ ਕਾਪੀ ਤੁਹਾਡੀ ਆਪਣੀ ਭਾਸ਼ਾ
ਵਿਚ ਚਾਹੀਦੀ ਹੈ, ਤਾਂ ਹੇਠ ਲਿਖੇ ਨੰਬਰ 'ਤੇ ਫ਼ੋਨ ਕਰੋ ਜਾਂ ਹੇਠ
ਲਿਖੇ ਪਤੇ 'ਤੇ ਰਾਬਤਾ ਕਰੋ:

Gujarati

જો તમને આ દસ્તાવેજની નકલ તમારી ભાષામાં
જોઈતી હોય તો, કૃપા કરી આપેલ નંબર ઉપર
ફોન કરો અથવા નીચેના સરનામે સંપર્ક સાધો.

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