SCAN-UK The UK Sustainable Cities and Aviation Network

Workshop Proceedings 1

Sustainability & Air Transport

What does this mean for the aviation industry?

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Manchester Airport.

SCAN-UK is an EPSRC funded network of experts from industry, government, NGO's and academia.

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INTRODUCTION

By Professor Callum Thomas
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SCAN-UK

The Sustainable Cities Aviation Network SCAN-UK is an Engineering and Physical Sciences Research Council (EPSRC) initiative designed with the following objectives:

- To assist the UK Government (through EPSRC) to determine the research agenda required to assist clarification of sustainability as it applies to the aviation industry and also the link between aviation and city and regional development.
- To create a network of experts from all sectors (academia, industry, government and NGOs) to discuss and debate key issues surrounding sustainable aviation.
- To provide, through development of a web-site (www.scan-uk.mmu.ac.uk) a central resource supported by databases and key contacts, which will enable informed public debate and increased the awareness of issues surrounding sustainable aviation.
- To deliver 2 workshops per year and two international conferences in three years.

This work is funded by a £50K grant over three years, which provides staffing for 2 days per week. During the course of the project, proposals will be brought forward to establish SCAN-UK on a commercial footing.

SUSTAINABLE AVIATION

Aviation has a particularly important role in supporting and facilitating Britain's participation in the global economy. It is ideally suited to the carriage of people and high value good at speed over long distances.

Aviation is less than 100 years old (1903) and civil aviation has really only developed since the end of the second war. Yet in less than half a century it has grown to a position where today air transport is believed to be responsible for about 5% of climate change emissions arising from human activities.

Demand is strong, and if unchecked, the industry could be expected to grow at 5-7% per annum for next 20-30 years. I.e. it could double in size by 2012. We are used to mass air transportation in Europe and North America but some of the fastest growth is anticipated in Asia and South America and the further into the future Africa. China is believed to be building 40 airports at the present time. This has important implications for the UK and the developed world, not only because it means that more pressure is placed upon the global environment, but also because such growth will generate additional demand in Europe.

This will have significant implications in environmental terms, as aircraft technology is not developing rapidly enough to offset the effects of the growth in the industry. Accordingly, unless there is a step change in aircraft technology it can be anticipated that the environmental impact of air transport will increase in the future. At a local level increasing demand will generate the need for additional infrastructure that has its own environmental consequences in terms of habitat loss. At a local and regional level it also has the potential to generate significant amounts of additional ground traffic and hence emissions and road traffic congestion.

At a global level the continuing growth in air travel has important implications in terms of climate change, as have been shown in the recent report produced for the Inter-Governmental Panel for Climate Change (IPCC). At Kyoto, the world's governments agreed that there was an urgent needs to reverse the effects of climate change and accordingly signed up to an agreement which will seek to constrain and then reduce Greenhouse gas emissions over the next 10-15 years. Europe agreed a reduction of 8% over this period and the UK set itself a target of –20%. Over the same time period, emissions from aviation will not decline at all. Indeed they are expected to rise and probably double. This means that the

contribution made by aviation to the total human burden on climate change will increase. Clearly this is unsustainable – politically if not environmentally.

But the benefits of aviation are significant also:

- It facilitates the development of the global economy;
- It will be critical to supporting regional development;
- It facilitates inward investment and carriage of goods.
- It enables global travel for leisure and education; and
- It has been critical in the emergence of the multicultural society in which we now live.

So the benefits are significant, as are the costs. Deciding how the aviation industry should grow in the future is a very significant challenge for governments at the present time. The concept of sustainability has only really been part of mainstream thinking since Rio in 1992. Governments are now committed to the idea and they have to make important decisions about how to develop aviation in a sustainable way.

At the same time both the demand for growth and the benefits of an expanding industry are significant. Change is happening rapidly and yet we still have no real idea about what sustainability means for the air transport industry. However it will clearly not be achieved through 'business as usual'.

Many people within the aviation industry, within Governments, within NGOs, within academia have considerable expertise are researching these issues. All have a common agreement that something needs to be done. However there is lack of agreement about exactly what should be done and how quickly.

The objective of the SCAN-UK Workshops is to bring together a diverse group of individuals from across the UK (and abroad) all with interest / expertise in this field and to facilitate debate and discussion. The object being to clarify exactly what is mean by sustainability as it is applied to the aviation industry and to consider what different sectors can do and how they can work together to make the industry more sustainable?

The Airport Perspective

A Presentation by Alan Melrose

Management Consultant - Environment, Manchester Airport

The world is changing ever more rapidly. Population is growing steadily and society is expecting a better quality of life for present and future generations. Society is also demanding a rising standard of living, an improving environment, increasing freedom of choice and greater influence on decision making. There have, however, always been tensions between these ambitions. It is only recently that concern over our planet's continuing ability to support a thriving and ever growing human society has raised sustainability to the top of the political agenda. Addressing this issue will require new ways of thinking, clear vision and more responsible action by every part of society.

Most definitions of sustainability acknowledge the need for a balance between environmental, social and economic factors. Business is increasingly adopting this triple bottom line approach in its decision making in order to safeguard long term viability. In return, modern society must acknowledge the vital contribution that successful business makes to people's quality of life.

The UK's sustainability policy is set out in the recently published UK Government sustainable development strategy 'A better quality of life', the key themes of which are:

- To promote high and stable levels of economic growth and employment and ensure effective protection of the environment;
- To promote social progress that recognises the needs of everyone and ensures the prudent use of natural resources;

Meeting society's demand for travel and freedom of mobility requires an integrated and sophisticated approach from all in the transport sector, government, local authorities and local communities. Compromise, partnership and cohesive action are fundamental if we are to make the necessary progress towards sustainable mobility.

Aviation makes several positive contributions to this present concept of a sustainable society, for example:

- Health improvements due to poverty reduction
- Cultural enrichment and development
- International business links Leisure provision
- Direct and indirect employment
- Economic development especially at a regional level

Indeed it is true to say that today's global economy and hence society itself could not function and people could not meet their present quality of life aspirations if it were not for aviation. With growth in demand set at around 5% globally this major positive contribution to modern society is set to increase. And the role of aviation to society is even more important to an island state like the UK.

There is a significant downside to this success however, and this arises from the fact that earth's environmental capacity and its resources are limited and aviation is placing an increasing burden on these. It is also true that at a local level airport activity causes adverse environmental impact in all sorts of ways such as land take, waste, water pollution, traffic congestion, air quality and so on, together with adverse social impacts, principally from aircraft noise and road traffic emissions.

Mitigation is possible and some management solutions can produce a dramatic reduction in adverse impact. Ultimately however, aviation's growth will outstrip technology's capacity to reduce aviation's impact and therefore society at some point in the future will face tough

decisions surrounding some form of imposed or strategically designed constraint relating to aviation.

The rate at which such decision points are reached will depend upon factors such as:

- Population Growth
- Third world development
- New knowledge about capacity and resource
- Globalisation and development of consumerism generally
- Shifts in cultural aspirations and expectations
- The development of communications technology The development of other modes of travel
- The rate at which existing capacity in aviation is maximised
- The rate at which adverse impact can be controlled and mitigated
- Our willingness to sacrifice other aspirations in favour of air travel

Some of the above, such as population growth, are proving to be beyond the ability of society to control. Other factors such as third world development are a feature of cultural advancement and are a natural right of humanity.
Others such as our passion for consumerism, are acknowledged as requiring some form of focus and yet are such fundamental aspect of modern society, that it is difficult to know what to do or how to do it.

Whilst we must engage in the mega-problem debate, we cannot afford to await the outcomes. Planning and action is needed now

For the present, and whilst keeping an eye on the aforementioned mega-problems (that are fundamental to overall global environmental capacity), we need to try to figure out how those involved in aviation can buy as much time as possible so that society can deal with some of societies larger problems. This leads us to concentrate on those issues that we can define and that we can set an agenda for change. This in turn requires a clear vision for future aviation and hence for airports in the context of the regions which they serve. It also requires an understanding of which topics are to be handled in what forum. It also requires a viable framework for progress to be generated.

I will give you 2 slightly tongue in cheek examples of actions which whilst having a logic in an environmental context, serve to illustrate that any action to use a now out of fashion phrase must be joined up:

The first concerns market forces:

It is reasonable to state that in order to minimise ground transport journeys, long distance air travel should be available as close to the point of demand as possible. It would seem logical therefore to try to establish routes to all of the world's major cities from each of the commercial airports in the UK, a sort of share and share alike policy. The problem here is of course that almost none of the flights would have a viable number of people on board, there would be definition be an increase in international flights accelerating the depletion of global environmental capacity. In addition there would be a significant increase to the number of people affected by noise compared to the scenario of a single large well served airport with one noise-affected community. In addition each airport would have many airlines based there with all the attendant duplications of roles and loss of economy of scale etc. If this artificial multi-airport system was then opened to market forces most of the routes would quickly disappear and the demand would coalesce around just a few airports. If one were to model the total environmental impact of the resulting changes one would probably find that capacity had been maximised by the market and that the adverse environmental impact had been much reduced -although there would have been some shift from aircraft impact to ground transport impact and so on.

It is true, that there is tremendous potential in maximising the ability of UK airports to work together with other stakeholders such as airlines and rail operators etc. to serve demand in the most sustainable way. The above example just serves to illustrate that any such system must acknowledge that the market is king. The trick will be to truly understand the nature of UK mobility in term's of demand and the systems that supply it and to establish a framework and partnerships such that a balance between the benefits of critical mass and the benefits of a pan modal strategy is achieved.

The second example relates to Competitiveness.

Let's assume that realising that global fuel stocks and emissions from aviation. Fuel use contribute to climate change and despite international agreements and MMC price regulation, Manchester were to decide to unilaterally impose a 25% fuel tax on all aviation fuel sales. The result would be that UK demand for aviation would remain largely unaffected, with any shortfall in demand being regained through local inflationary wage demands to cover increased holiday prices and increase product prices to cover for additional business travel costs. These would in turn reduce regional competitiveness and some business would be lost to other regions and overseas. Locally some shift in demand would occur with some long haul flights moving to the congested SE, Schiphol, Frankfurt and Paris and other leisure flights moving to other regional airports with an attendant increase in ground transport. Some aircraft would tanker fuel elsewhere or abroad thus marginally increasing emissions. This example is not designed to advocate that no fiscal instrument is acceptable but rather that an individual player can't ignore the existing framework and the needs of the various stakeholders.

It is essential therefore that whilst we must face head on the difficult problems sustainable aviation presents us with, we must also work within the wider framework maximising the use of existing networks and maximising partnerships of the likes of SCAN UK

I would now like to focus a little on what individual airports should be doing and will finish with a few challenges for today's workshops and for the scan steering group to consider.

In terms of airports, most major now have a fairly advanced environmental management systems, Manchester for example employs over 25 full time environmental and community experts. Most airports are seeking to control noise, to reduce energy use and increase the use of renewables, to increase public transport access, to control water pollution, to adopt waste minimisation, and latterly to reduce emissions from ground based plant and equipment. Some notable advances and improvements have been made but there is always room for improvement.
Areas where airports need to develop skills is in understanding and maximising the social and economic benefit arising from their success, in supporting inclusion policy and perhaps most importantly to get a clear vision on long term local capacity issues building these constraints and their solutions into their plans. Predict and provide is unfortunately still alive and kicking

Airports are also only just starting to truly contribute to the wider sustainability debate and this is another area where a greater commitment is needed. I don't just mean in terms of international agreements on noise standards here but in the wider strategic debate about maximising the capacity of existing assets and dealing with issues such as modal split for short haul routes and even arriving at a partnership to maximise environmental capacity for a regional or area rather than the traditional competitive relationships etc.

Whilst most airports have employed experts to deal with environment and community issues there are few airports where this issue is a main stream aspect of the business plan for all departments. This is the ideal and yet still seems elusive. Environmental and sustainability challenges and excellence should come as a natural function of the job, from all areas of the work force. Essentially, the truly successful environment manager will ultimately make his or herself redundant -because success should be defined as the point when all members of staff in all of the airport's on site organisations have assumed the environmental responsibility for their area of work and they are no longer needed.

I am please to report that my job security has never looked so wobbly as in the last 2 years here at Manchester and quite often now I hear of wonderful sustainability initiatives that have spontaneously occurred as a result of an operational managers enthusiasm. Luckily for now, this seems to be the province of MAPLC and whilst many of the MA tenants are committed to environmental management such as BA and British Midland for example, many others have major room for improvement even in the basics so I should make it to retirement Oust).

All of this good work is of minimal use however unless it involves all of the stakeholders involved in the airport's development and operation and unless it supports a much wider regional, area and national strategy. Delivery of an airport's commitment to increasing public transport for example will only come from a partnership involving many external players.

From MAPLC's perspective, the stakeholders involved in the delivery of a comprehensive airport, local and regional plan might include:

- Central and regional government
- CAA, Eurocontrol and other international bodies Airlines and service partners
- The community in the form of individuals, community groups and consultative committees
- Local authorities Regulators
- Other transport mode operators Academia and education bodies, other airports
- NGO's and regional players

I would like to think that we have worked well with these stakeholders and have achieved some notable achievements.

Finally I would like to pose some questions just to help discussions along a little.

What is the vision for global, regional and local sustainable mobility? What does it look like? How does it work? When will it come about? What are its development phases? Agreeing this fundamental basic concept at an early stage is absolutely vital to ensuring that we adopt the right approach.

In order to manage sustainable aviation we need to measure it so that trends can be followed and benchmarking undertaken, what high level Key Performance Indicators should be used for airports and for aviation as a whole.

As aviation's predominant interface with people, should airports be granted some form of regulator status to ensure that all tenants and concessionaires are forced to adopt sustainable practices? What other mechanisms can achieve this?

Before we adopt any policy, strategy or instrument designed to shift demand from one mode to another should a full environmental assessment of each mode for differing distances and situations be undertaken to allow informed decision making. Has such an assessment been carried out what were the results? Did the analysis look at passenger journey kilometres under real operating conditions or just a few example situations/vehicles?

If the following were not included then it was not full:

- Land take/land protection for every aspect of the mode Total noise impact
- Climate change contribution per passenger journey mile (i.e. comparing like with like taking directness of travel and operating conditions into account)
- Air quality impact -people affected per journey mile Infrastructure provision impact
- Vehicle life and impact per passenger journey mile Energy use
- Maintenance and operational resource use and pollution impact Dig and fill and so on.

Maximising unused capacity must be a key tenet of sustainable aviation; this will only be achieved through strategic policy and market influences. Do we know what spare capacity

exists and is there any role for some form of commercial or policy led system to trade this capacity like a commodity or ensure that it is filled as the first resort?

Whilst ground transport and many other ground related energy users can run on any fuel from nuclear to wind power, aviation can as yet only run on the kero fraction of oil. If society relies on aviation should humanity globally be seeking to maximise and ring fencing this fraction for aviation?

Are there any unacceptable uses to which aviation is put? If so how can these be dealt with and perhaps more importantly in terms of tourism examples what do we replace them with in terms of people's aspirations/ (does no Benidorm equal a denuded Peak District and more UK crime?)

What is the future role of communications and information technology in terms of maximising capacity and reducing impact and stimulating and reducing travel.

Are there any really viable alternative fuel sources or aircraft modifications that could dramatically reduce emissions and fuel use?

At present each generation learns its aspirational values from the preceding one -i.e. parents. And regardless of how much a generation professes to care for the environment and regardless of how much the issue is covered in school curricula, if a parent lusts after the Mercedes Benz so generally will their kids. How do we change aspirations from a mind set were we measure quality of life by the distance of ones annual holiday from home.

Sustainable Aviation – an environmental perspective

A Presentation by Tim Johnson,
Director, Aviation Environment Federation

During the 1980s and early 1990s, the primary concern of many NGOs and community groups was aircraft noise. Today these concerns are much broader, encompassing local air quality and third part safety issues, as well as the effects that aircraft emissions have on climate change. This has coincided with a shift in the attitude of policy-makers: the environment's increasing prominence has led to recognition and understanding of the issues by regulators, who in turn are asking how, rather than whether, to tackle these problems. Proof of this can be seen at all levels: from the Government's commitment in its 1998 White Paper to produce a national aviation policy based on sustainable principles, through to the European Commission's recent communication on Air Transport and the Environment; the work being undertaken by ICAO's environmental committee (which recently admitted environmental NGOs as observers), and various policy recommendations from the Royal Commission on Environmental Pollution and, recently, the G8 Environment Ministers. With the issue firmly on the agenda, the role of NGOs is also changing: while organisations still spend much of their time raising awareness of the issues and pressing regulators and the industry to take action, many are also developing and promoting mechanisms that may provide solutions aimed at meeting our environmental objectives.

But what are our environmental objectives? The answer can be expressed quite simply – we want to reduce the impact that aviation has on the environment. Less impact may seem a simple and obvious message, but sometimes we get side tracked with terminology such as "improved environmental efficiency". No one would criticise the benefits of new technology and other efficiency improvement measures - they are needed - but when the growth rate of the industry outstrips these improvements, the cumulative environmental impact still increases. Perhaps the best example of this is the recent Intergovernmental Panel on Climate Change (IPCC) report on Aviation and the Global Atmosphere: industry forecasts predict that technology advances will lead to improvements in fuel efficiency of between 40-50% by 2050, with further operational improvements providing an additional 18% gain over the same period. Yet all the growth scenarios addressed in the report still show an increase in greenhouse gas emissions. This problem was summarised in the recent EU Communication on Air Transport and the Environment:
"*Air transport is a growth industry. This implies that this industry is important for the economies of the European Union. But the air transport industry is growing faster than we are currently producing and introducing technological and operational advances, which reduce the environmental impact at source. The overall environmental impact is bound to increase since the gap between the rate of growth and the rate of environmental improvement appears to widen in important fields such as emissions of greenhouse gases. This trend is unsustainable and must be reversed because of its impact on climate and the quality of life and health of European citizens. The long-term goal, therefore, must be to achieve improvements to the environmental performance of air transport operations that outweigh the environmental impact of the growth of this sector.*"

Few NGOs actually advocate less aviation as their objective, but this becomes the ultimate challenge – if technology alone cannot deliver the targets we set ourselves, then consideration of other measures, many of which can be grouped under the heading of "demand management", become the only realistic alternative.

Targets and Measures
As previously mentioned, if we wish to achieve a sustainable aviation policy then we have to address the cumulative impact that the sector has on the environment, and set ourselves corresponding goals. The main areas requiring targets are set out below:

Noise – World Health Organisation guidelines for daytime (55 dB_A L_{eq} measured outside a building) and nightime (30 dB_A L_{eq} measured internally) community noise exposure; forthcoming EU Directive on noise mapping and indicators.

Emissions – local (local air quality standards – soon to come into effect in the UK) and global (emissions from international aviation are currently excluded from the Kyoto Protocol so the industry will not have to comply with the internationally agreed reduction targets. This will put pressure on ICAO to determine its own target and strategy for the air transport sector).

Third Part Safety – risk contour assessments should be mandatory and an independent body having responsibility for community risk should be established.

Mechanisms:

1. Market-based options such as environmental levies (taxes and charges) and emissions trading (the use of "cap and trade" mechanisms);
2. Policies and regulations, including more stringent engine emission certification standards, and the removal of subsidies and incentives to the industry which "have negative environmental consequences";
3. Intermodal transport networks - the substitution of short-haul air travel by rail and coach, where viable, to reduce CO_2 emissions per passenger kilometre. The IPCC Report estimates that up to 10% of European passengers could be transferred from aircraft to rail. This is not surprising given the fact that over 68% of the 7.5 million movements handled in Eurocontrol airspace in 1998 were for flights of less than 1000 km (Source: Eurocontrol);
4. Voluntary initiatives by the industry.

In practice, it is likely that any effective strategy to reduce emissions from the aviation sector will need to comprise a number of these measures working in parallel. There is much consensus on the future role of technological and operational improvements, and the potential for improving engine emission certification standards. The use of market- based options, however, is currently the subject of much debate.

There is growing support amongst the industry, especially in the United States, for the development and introduction of an emissions trading system. The concept of emissions trading is based on setting a cap on emissions and then allocating "allowances" or "permits" to individual sources (most likely, the air carriers). Each company then has the option of meeting their target by, for example, investing in new technology or improved operational practices, or trading with other sources who are below their cap (this is likely to occur when the specific emission control costs are higher than the cost of buying additional allowances). At present, there are few working examples of this concept in use in any economic sector. In the absence of any detailed proposals on how such a system would work in relation to air transport, it is currently difficult to judge its potential or effectiveness. Answers are still required to important questions such as who would oversee, monitor and enforce the system, and what penalties would be introduced for non-compliance? Specific concerns of many environmental NGOs include the need for any mechanism to impose a limit on the volume of permitted trading; and that the trading of allowances should take account of the regional impacts of emissions from air transport, and that NO_x emissions are more effective in the formation of ozone at altitude that equivalent emissions at ground level.

In Europe, many environmental NGOs advocate the use of environmental levies (largely by means of a tax on kerosene or an emissions charge). Many governments already agree that the absence of a tax on kerosene is an anomaly. While several countries have introduced or are contemplating a tax on kerosene for domestic flights, 97% of bilateral air service agreements prevent this being extended to fuel used on international flights. Yet, realisation that aviation and its users should meet the full environmental and social costs they create, is gaining more acceptance with decision-makers. Reviewing existing studies, the IPCC Special Report provides a good summary of the advantages of fiscal instruments: "levies on fuel and en route charges are viewed as the most environmentally effective levies. If passed through to consumers, environmental levies could reduce consumption of aviation fuel, hence aircraft emissions, by providing incentives to develop and use more energy-efficient aircraft, by optimising operations, and by reducing the growth in demand for air transport."

Sustainable Aviation Policy

A presentation by Julia Penton

Airports Policy Division, Department of the Environment, Transport and the Regions

Introduction

We are entering an important period for the future of aviation in the UK. I would like to outline today how we envisage aviation policy developing in this period.

Over the past 20 years the aviation industry in the UK has experienced rapid growth. The number of passengers carried has trebled and air transport movements have more than doubled. Our traffic forecasts show that future growth rates will continue to be high, rising to almost double current levels by 2015.

The Government recognises that as demand continues to grow new policies need to be developed to ensure that future development is sustainable.

Air Transport White Paper and Consultation Document

The Integrated Transport White Paper stated that the Government would produce a new statement of airports policy which would look 30 years ahead and would bring forward new policies on civil aviation. As airports policy and aviation policy are so closely linked we need to address these topics in an integrated way. Chris Mullin, the Aviation Minister, therefore announced in November that these would be brought together in a new Air Transport White Paper.

This White Paper will look 30 years ahead and will provide a policy framework for the future of aviation and airports in the UK. It will be a wide-ranging document addressing issues surrounding current and possible new capacity, future development of airlines and consumer issues.

The White Paper cannot be produced until after the decision on a fifth terminal at Heathrow as this will have large implications for the future of the industry. The Inspectors' report on Terminal 5 is expected in the first half of 2001 and Ministers will then need to formulate their decision.

In the meantime we want to consult widely in drawing up the White Paper and we will therefore be producing a consultation document to precede the White Paper. This will provide an opportunity for all interested bodies to contribute to the development of the new policy framework.

Key Principles

The White Paper will be based on several key principles, which were outlined in the Integrated Transport White Paper.

Regional airports

Firstly, we must make good use of our regional airports. The Government stated in the Integrated Transport White Paper that it would encourage the growth of regional airports to meet local demand, where consistent with sustainable development principles.

We have set in hand a series of studies to examine the issues surrounding regional airports. These will enable us to develop a better understanding of the role of regional airports in economic development, the demand for air transport in the regions and the implications for airport capacity. Studies of the South West, the Midlands, the North of England, Northern Ireland, Scotland and Wales are nearing completion.

We will then be pulling together the findings of this work in a co-ordination study, with a view to consulting on the options.

A study of the situation in the SouthEast is being taken forward on a different timescale and is not expected to be completed until early 2001. This study will also examine the case for new capacity, having regard to the social, economic and environmental impacts.

Integration with Surface Transport

Secondly, airports should be fully integrated with Government policies on surface transport. In particular it needs to become more attractive for people to chose public transport to travel to and from airports.

The Integrated Transport White Paper established the requirement for all airports with over a thousand passenger air transport movements a year to lead an Airport Transport Forum. These Forums must set targets for increasing the proportion of journeys made by public transport and devise a strategy for achieving these targets. We will review progress in this area in drawing up the White Paper

Sustainable development

Thirdly, and most importantly, the Integrated Transport White Paper made it clear that the future development of aviation and airports must be sustainable.

In line with the Government's Strategy for Sustainable Development, this means that development should have 4 main objectives:

- maintenance of high and stable levels of economic growth and employment;
- social progress which recognises the needs of everyone;
- prudent use of natural resources; and
- effective protection of the environment.

The White Paper will need to establish a policy framework which attempts to balance these often conflicting demands. This will be the biggest challenge facing the future of aviation.

Economic Growth

The economic impact of aviation is generally well recognised. Growth of the aviation industry has brought direct economic benefits through increased employment opportunities. A recent report by Oxford Economic Forecasting estimated that the aviation industry provided 180,000 direct jobs in the UK. The success of the aviation industry has also facilitated growth in other parts of the economy, enabling UK businesses to compete effectively in the global market place and encouraging inward investment in the UK.

Airports are also an important part of local and regional economies. We are currently undertaking further work to understand the role of regional airports in their local economies and this will feed into our work for the White Paper.

Social inclusion

Social inclusion may not appear to be a major issue for the industry but aviation does have social impacts. Perhaps the biggest contribution aviation can make to social inclusion is in helping to ensure that the jobs provided or supported by the aviation industry get to those areas which need them most, the areas of high unemployment.

The growth in the aviation industry has also enabled many more people to benefit from increased opportunities to travel, whether for leisure or education.

Environmental impact

But the biggest issue facing the future of the aviation industry is the environmental impact. Air travel has impacts on the environment at global level where it is a contributor to global

warming and at local level where impacts include noise disturbance, local air pollution, and take up of greenfield land.

International organisations play an important role in controlling the environmental impact of aviation. At worldwide level ICAO agrees standards for both noise and emissions. ICAO is currently considering the use of economic instruments to control climate change emissions and UK representatives are involved in these discussions. The Government recognises that any decision in this area would best be taken at international level to ensure a level playing field is maintained.

In terms of local impacts, aircraft noise is generally seen as the most serious. At many of the major airports the noise climate has been improving and is likely to continue to do so in the near future with the phase out of Chapter 2 aircraft. But the question is whether this favourable trend can continue in the future if air transport movements continue to grow.

Local air pollution is also an increasingly important issue. Emissions from aircraft and surface transport contribute to air pollution impacts around airports. As I have mentioned, many airports have now established Air Transport Forums to address some of the issues surrounding surface access. Local authorities are also required to assess air quality in their areas and to identify and draw up action plans in problem areas.

In drawing up the Air Transport White Paper we will be considering policies to reduce these negative impacts and to ensure that aviation meets its external environmental costs.

Key Questions

There are therefore a number of difficult issues to be addressed in developing a sustainable air transport policy and in balancing economic, social and environmental concerns. I have identified a few key questions:

Are we making the best use of available capacity?

Obviously at some airports current demand exceeds capacity, either for a few peak hours or for more of the day. If demand continues to rise as forecast this problem is going to intensify.

Should we contemplate different approaches for different airports?

Clearly central government needs to set down a general policy framework but there is an issue about how specific and detailed central policy should be. Policy will need to recognise that there are considerable differences in the circumstances of different airports.

What should be the balance between regulatory and economic instruments?

At present minimum standards tend to be set by regulation plus local controls (e.g. noise contour limits). But there could be a greater role for economic instruments to encourage airports and airlines to move quickly towards higher standards. For example, economic instruments could give airlines incentives to use quieter planes, or to use airports where noise will not affect so many people.

Should we aim for positive environmental improvements or a principle of no worsening in environmental impacts across all airports?

Positive environmental improvements have been achieved on noise in recent decades at many major airports. But this might be more difficult in the future, and is almost certainly not compatible with the high rates of growth that we have seen at a few airports in recent years.

Conclusion

These are just an example of some of the issues we may need to address. We are just beginning to establish a new policy framework and although we have begun to recognise many of the issues to be considered I'm afraid we do not have answers yet. But we hope that our studies will identify options, and assess their impacts. And we hope that all those with an interest will become involved in the process of consultation to develop a sustainable framework for the future of aviation in the UK.

Summary of Working Group Discussions

Working groups addressed the following key questions:

Sustainability - How can this be defined in the context of the aviation industry?

- How can government achieve or encourage sustainable development and sustainable aviation?
- What role can academics play in the achievement of sustainable aviation?
- Are planning bodies capable of making the most sustainable decisions?
- What benefits could SCAN-UK provide to the sustainable aviation debate?

In response to the above issues the following conclusions were reached:

- no agreement could be reached as to how sustainability can be defined in the context of the aviation industry. **A clear need was demonstrated for a clarification of this issue and the need to clearly define operating capacity *vs* environmental capacity.** At present there is no solid stance on the capacity of the existing system;
- the role of government was considered critical in defining the growth of the industry and hence its impact;
- there is wide scope for useful, high quality research to be undertaken by academics and a clear need for a non-industry "independent body" (such as EPSRC) to fund research which was of relevance to all sectors, particularly with regard to key capacity indicators;
- airport developments are considered to have outgrown local planning systems. which may not be flexible enough to provide a suitable review process;
- in principle SCAN-UK should provide a means of improving communication between sectors however there is a need for the network to be proactive in its approach to addressing key issues.

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