



## Aviation and the Environment Killing Myths and Setting the Agenda

(Geneva) "The environment is among aviation's top challenges. First we must kill some persistent myths about our approach to the environment. And we must map the way forward with a clear strategy to further improve aviation's performance," said Giovanni Bisignani, Director General and CEO of the International Air Transport Association (IATA) at the opening of the Second Aviation and the Environment Summit.

Bisignani identified **five myths** that must be debunked with fact:

1. Air transport was excluded from Kyoto and doing nothing on the environment.

**Fact:** "Domestic aviation is included in Kyoto. International air transport was excluded but with a commitment to find a solution through ICAO by the 2007 Assembly. Airlines took environmental performance seriously long before Kyoto. Over the last 40 years emissions per passenger kilometre have decreased by 70%," said Bisignani.

2. Air transport is a major source of Greenhouse gas emissions.

**Fact:** "Air transport contributes a small part of global CO2 emissions—2%. By contrast, the air transport industry supports 8% of global economic activity. Even if all air travel stopped, the result is only a 2% global improvement in CO2 emissions. But the impact on global economies would be disastrous," said Bisignani.

3. Air transport is the most polluting form of transport

**Fact:** "Airline fuel efficiency improved 20% in the last decade, nearly 5% over the past 2 years alone. Today's modern aircraft consume, on average 3.5 litres per 100 passenger kilometres. This is similar to a small compact car but with 6 times the speed. Next generation aircraft—the Boeing 787 and Airbus A380 are targeting fuel efficiencies below 3.0 litres per 100 passenger kilometres," said Bisignani.

4. Air transport is getting a free ride by not paying tax on fuel.

**Fact:** "Air transport pays entirely for its own infrastructure—a US\$42 billion annual bill. Airlines pay when they land, when they fly and when they park. This is completely different from both road and rail. On top of that air transport is a cash cow for many governments. In Europe every rail journey is subsidised between €2.4 and €7.4. But every air journey contributes between 4.6 and 8.4 Euros in government revenues and avoided expenditure," said Bisignani.

## 5. Air transport growth is not sustainable.

**Fact:** "Air transport is essential. Air transport brings people to business, products to markets, tourists to holiday destinations and unites families and friends around the world. In short, air transport made the global village a reality. 80% of aviation emissions are related to flights over 1,500 km for which there is no alternative mode of transport," said Bisignani.

"Setting the record straight alone will not be enough. The IATA strategy on the environment is designed to achieve maximum benefit with a globally consistent approach," said Bisignani. IATA's strategy consists of **four core principles**:

- "Technology is key. Lighter materials and more efficient engines have driven progress so far. Now it is time for governments to ensure that oil companies invest in research on alternative fuel sources," said Bisignani.
- "Infrastructure and operations must be a part of the solution. Airlines are on track with their voluntary commitment to reduce emissions by 10% between 2000 and 2010. Governments and air traffic service providers must contribute as well. Globally, optimised air traffic procedures could deliver 12% greater efficiency," said Bisignani.
- "Taxes are not the answer. They do nothing for the environment. And they kill the economic social benefits that air transport brings. We must find a solution that does not limit airlines' ability to invest in new technology," said Bisignani.
- "Emissions trading may be a part of the solution. But it must be a global solution agreed through ICAO. We are in the process to achieve a result for the 2007 Assembly. There is no time to get distracted with local or regional schemes that will be less effective than a global solution," said Bisignani.

"Environmental responsibility is a pillar of our industry alongside safety and security. We are the safest form of transport because of global standards and harmonisation. The same approach is needed to deliver the best results on environment issues," said Bisignani.

## Public enemy?

Jackie Thompson / Geneva, [www.airlinebusiness.com](http://www.airlinebusiness.com)

### **Has the air transport industry been miscast as the arch villain in the global pollution drama? If so, what can it do to clean up its image?**

"Could aviation follow the cigarette industry as public enemy number one?" This was the startling question posed to delegates at April's Aviation & Environment Summit 2006 by Alexander ter Kuile of CANSO, which represents the interests of air navigation service providers worldwide. "Are we social outcasts just because we work for the aviation industry?"

And he was not alone in his concerns. "It feels like we are sitting on a panel of accused trying to defend ourselves," complained Christian Scherer, Airbus executive vice-president of future programmes.

The Aviation & Environment Summit was first held in 2005 and is jointly organised by aviation industry bodies the Airports Council International (ACI), Air Transport Aviation Group (ATAG), Civil Air Navigation Services Organisation (CANSO), IATA and the International Co-ordinating Council of Aerospace Industries Associations (ICCAIA) to "bring the entire air transport industry together, to consider major environmental challenges and communicate joint industry messages/data aimed at sustaining air transport's development and securing its future growth".

At the inaugural summit in 2005 the air transport industry adopted an action plan through which it committed to "develop and introduce the best available technologies and practices that would improve the industry's environmental performance".

"We must be constantly aware of how society perceives us," warned ter Kuile. "Aviation has become a public symbol of globalism and industrialisation. It has a high visual impact," he added.

It is within this visibility that the problem lies. No matter how many statistics are spouted in defence of air transport compared with other modes of transport or comparable industries, it is perceived – with its contrails and night time airport curfews – as the dirty man of the global economy. This is despite the fact that "the growth of aviation on a global basis is fundamental to the developing world's development", said John Begin, deputy director of IATA's air transport bureau.

According to ATAG, aviation transports some 2 billion passengers annually, and 40% of interregional exports of goods by value. Its global economic impact is estimated at \$2,960 billion, equivalent to 8% of the world's gross domestic product (GDP).

"While aviation is a catalyst for social and economic development around the world, it is a source of pollution," said ICAO president Assad Kotaite in his opening remarks at this year's summit. "While aviation's total emissions are modest compared with other sectors they are not expected to decrease in the coming years," he added.

Air transport is estimated to contribute 2% to global greenhouse gas emissions. 1kg (2.2lb) of jet fuel causes 3kg of CO<sub>2</sub> to be released into the atmosphere and with an industry that is currently growing a rate of 5% a year, "the rate of growth is a fundamental problem", said Tim Johnson, director of the UK-based Aviation Environment Federation. "The technological solution measured over time is significant," he conceded, "but it does not offset this growth rate."

Different parts of the world place varying emphasis on the three main contributors to pollution: noise, air quality and global emissions. According to Carl Burleson, FAA director, office of environment and energy, noise is the number one issue in the USA, whereas global emissions are the main focus for the European Union.

Because of this European emphasis on reducing emissions, European Commission (EC) proposals to include aviation in its emissions trading scheme are expected to be published this summer. IATA director general Giovanni Bisignani said that such trading is preferable to additional taxes and charges, but warned that it could still impose "substantial costs" on airlines. He said that targets and benefits must treat all airlines equally, and that trading should only apply to carbon dioxide emissions.

The European scheme has suffered an embarrassing setback, however, as figures released by the EC in May revealed that most member states had given their industries far too many pollution-permitting carbon credits. Under the current scheme no adjustment to the existing allocation of permits is allowed, said the EC.

"Too often governments are part of the problem rather than part of the solution," said Bisignani. "Taxes are not the solution; they kill the social and economic benefits that aviation brings, particularly in developing countries. We need an approach that does not destroy the airlines' ability to invest."

Eurocontrol director general Victor Aguado agreed that emissions trading is one way of controlling the effect of aviation on the environment, but insists network efficiency is another vital method. "Emissions trading is just one element in reducing CO2 emissions, but it doesn't solve the problem," he insisted.

### **With one voice**

Speakers in Geneva demonstrated vividly that there are many different opinions within the industry on the severity of the problem of global pollution and the part played by air transport in global pollution, as well as on the best way forward. What is increasingly clear is that the industry needs to be seen to be singing from the same hymn sheet.

Rather than finding an engineering solution to what are actually social and political problems, the industry needs to engage with the outside world. Kevin O'Toole, head of strategy with the Flight Group, who moderated the summit, suggests that IATA should galvanise an industry response through ATAG using the next ICAO Air Transport Conference in September 2007 as a deadline. "There is a need to engage with the general public. Their opinion is what matters, not the view of non-governmental organisations," he insists.

"We need common aviation targets rather than a range of sometimes diverging targets proposed by various bodies and organisations. Aviation as a sector must demonstrate consistency in establishing its emissions levels objectives and the various options for attaining them," said ICAO's Kotaite. "We must be increasingly proactive in representing the aviation sector before the world community."

The airline industry, which welcomed over two billion customers onto its aircraft last year, needs to ask them what they really feel aviation's role in controlling its environmental impact should be. It may be that travellers are not ready to pay a premium to offset the carbon emissions from air travel or to journey by train rather than car occasionally, in which case perhaps the aviation industry cannot be expected to save the world on its own.

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#### **Green solutions**

There are two tracks to reducing air transport's environmental effect, apart from cutting the number of flights – operational and technological.

Speaking in Geneva, IATA director general Giovanni Bisignani stressed the importance of seeking alternative fuel sources. He added that jet fuel has remained unchanged over 40 years and that kerosene is still

the most efficient fuel type for aircraft.

Alternative fuel sources must be able to satisfy long-term availability and cost requirements before they can become a reality. The use of synthetic fuel is the "most promising" option for the short- to medium-term, he noted, but current aircraft engines can only accept up to 50% synthetic fuel.

According to Mike Farmery, global fuel technical and quality manager at Shell Aviation, the long lifetime and high capital costs of aircraft mean there is little incentive to develop alternative fuels. He sees kerosene as the preferred fuel for the next 30 years.

Both Airbus and Boeing are currently investigating the use of fuel cells to power aircraft auxiliary power units (APUs). Airbus senior vice-president of product policy Philippe Jarry said it plans to test the use of fuel cells on board an A320 in flight during summer 2007 in conjunction with engine manufacturer General Electric.

Rival Boeing has also been researching fuel-cell technology and is hoping to fly a fuel cell-powered demonstrator aircraft later this year, said Boeing Commercial Airplanes director of systems concepts Timothy Petersen. He added that fuel cell applications, which use 75% less fuel and produce less carbon dioxide emissions, can be successfully used to power ram air turbines and APUs.

A number of operational moves have the potential to reduce noise and fuel consumption. These include the continuous descent approach, which is being tested and avoids the stepped approach currently in use. It has the potential to reduce noise contours by 30%, says Eurocontrol director general Victor Aguado.

Russell Davie, manager, line operations, at Cathay Pacific Airways, identified inefficient air traffic control systems and procedures as the single largest cause of fuel wastage. He believes that 10-12% savings are possible, but that significant political commitment would be required.

### **Heathrow's runway battle**

The proposal for a third runway at London's Heathrow Airport arouses strong passions. Jeff Gazzard, campaigner with the Greenskies Alliance, made up of European environmental non-governmental organisations and citizen groups, demonstrated the depth of public feeling when he challenged British Airways general manager for airport policy Paul Ellis – who not surprisingly supports the runway plan – to "come and settle the matter in the car park", which raised a laugh, but there was no mistaking his sincerity as he insisted he would "die in a ditch before he let them build a third runway".

Given the interminable time it took for Terminal 5 to become a reality, there is little prospect of an additional runway, planned for the northern side of the airport, being built before 2015, according to Ellis.

**Flight International, 2 May 2006**

**Warming up: did last week's aviation environment summit achieve anything?**

The air transport industry gathered in Geneva last week for its second annual meeting on aviation and the environment. On balance it was a realistic attempt to assess achievements so far and discuss strategy for the future.

But a touch of self-deception creeps in wherever airlines – or any industry representatives – summarise how successful they and the manufacturers have been in improving the fuel-efficiency of aircraft over the last decade and more. As far as the perception of the public and the press is concerned, that is history. Even a major leap forward in emissions reduction, if it happened today, would be history tomorrow. Past successes will never silence those like Jeff Gazzard, the Green Alliance's veteran campaigner, nor the political representatives of constituencies near airports. They want to see the certainty of future additional improvement, especially faced – as they are – with the certainty that air transport movements will increase, at least in the medium term.

Historic statistics are only useful for convincing governments that the war is being fought successfully. This gives them the necessary ammunition when they argue, as in the end they find themselves doing, that aviation is an essential part of modern life, and artificial curbs on its natural growth will harm the economy of any nation that imposes them unilaterally.

That is why conferences like this are essential. Advances have to be agreed globally, or at least within major economic blocs like the European Union or the North American Free Trade Association, and unless they get together regularly, nothing will happen.

This conference has confirmed a subtle shift in aviation's environmental priorities. A decade ago noise at airports used to be the most talked-about issue, but it is being upstaged by discussion about emissions and global warming. The major reason why macro-issues like global warming are gaining ground at world forums, however, is that noise is – in the end – a local issue. In third world countries, if an airport brings jobs and relative prosperity, the noise is out of sight on the list of priorities for action. The importance of the global dimension is heightened by the expansion of aviation in populous countries like China and India as their massive latent market demand is gradually unlocked.

Meanwhile, the future profit that will accrue to the manufacturers of even quieter, more efficient engines and airframes ensures they will be developed anyway. So has this Geneva forum highlighted anything useful except the need for global co-operation?

Actually yes. Although the airline industry has, for years, been calling for air traffic management (ATM) that makes flying from A to B more direct and efficient, any benefits so far have been patchy and painfully slow to develop. Aircraft that spend more time in the air than necessary burn more fuel than they need to.

Poor ATM's contribution to global warming was put in the spotlight at this conference, while large-scale contributions by fuel-cell technology and alternative fuels are still far-distant prospects. ATM remains a rock-bottom political priority and, unfortunately, unlike the aeroengine industry, its performance is hamstrung almost everywhere by the direct effect of the ignorance and apathy of politicians on the performance of their state-owned air navigation service providers (ANSP).

Yet speakers like Cathay Pacific's line operations manager Russell Davie pointed out that 12% of wasted fuel is produced by ATM network inefficiency. There are real options: direct routings that are not upset by borders, or by spurious security considerations that have not been reviewed since the Cold War; optimum arrival and departure patterns at airports; and fuel- and noise-saving techniques like continuous descent approaches. Where they are being applied most effectively is in countries where governments have made their ANSP autonomous, or even

privatised it.

Governments cannot have their cake and eat it. They cannot allow their exchequers to pocket overflight revenues as if they were taxes without investing in an optimum ATM service for the future, at the same time crying crocodile tears about air traffic delays and the airline contribution to global warming. Politicians know no more about ATM than they do about building aeroengines, so those governments that have not already done so should get out of it – except in their safety oversight role – and leave ATM to the experts.



European Federation for  
TRANSPORT and ENVIRONMENT

## NEWS RELEASE

# REPORT SHOWS FIFTY-YEAR FAILURE OF AVIATION INDUSTRY TO IMPROVE FUEL EFFICIENCY

**7 December 2005 - FOR IMMEDIATE RELEASE**

(International Civil Aviation Day – Theme: The Greening of Flight)

Brussels - Today's commercial passenger planes are no more fuel-efficient than their equivalents of fifty years ago and aviation industry claims of a 70% improvement in fuel-efficiency are false. These are the main conclusions of a report by the Dutch National Aerospace Laboratory (NLR) published today by the European Federation for Transport and Environment (T&E) and released on this year's environment-themed International Civil Aviation Day.

The new report was commissioned to investigate the claims of key industry groups such as the International Air Transport Association (IATA) who say, "Aircraft entering today's fleets are 70% more fuel efficient than they were 40 years ago." (1)

The NLR, a world-leading aerospace research institute, found that the original source of the 70% figure, the 1999 Intergovernmental Panel on Climate Change (IPCC) Special Report on Aviation and the Global Atmosphere (2), only examined improvements made during the jet era and ignored propeller-based planes of the 1950s. The report shows that the focus on speed that led to the introduction of jet engines in the 1960s caused a massive initial reduction in fuel-efficiency that is only now being recovered. For example, the Lockheed Super Constellation of the mid 1950s was at least twice as fuel efficient as the first jets, and as efficient as today's aircraft.

The study also shows that even the efficiency gains made over the jet era have been exaggerated. The first reference point of the IPCC study was the most gas-guzzling passenger jet plane ever produced, the De Havilland Comet 4 which consumed much more fuel than other early jets. The second reference point, however, was the most fuel-efficient passenger aircraft produced to date.

Significantly, the report also casts doubt on industry forecasts of future fuel efficiency improvements saying "many studies on predicted gains in the future tend to be rather optimistic."

Jos Dings, Director of T&E said, "The industry has deliberately misled the public to cover up its failure to improve efficiency. There is no reason to believe they will prioritise efficiency in the future unless governments step in with serious incentives to cut emissions."

T&E published the report's findings on this year's environment-themed International Civil Aviation Day to highlight the failure of the International Civil Aviation Organisation (ICAO), the organisers of the event, to take action on reducing emissions - a responsibility they were given when the Kyoto Protocol was signed in 1997. (3) The last general assembly of ICAO in October 2004 effectively prohibited states from introducing emissions-related charges in a resolution that "urges contracting states to refrain from unilateral implementation of greenhouse gas emissions charges [before] the next regular session of the assembly in 2007".

T&E cautiously welcomed the recent EU proposal to include emissions from aviation into the European Emissions Trading System (EU-ETS) after 2009 but warns that trading alone will not provide enough of an incentive to cut emissions to the required degree. (4) In addition to



emissions trading, T&E is calling for a package of additional measures including fuel taxes and en-route emissions charges.

“With no VAT paid on international tickets, no taxes on fuel and billions of Euros in aid given to Airbus and Boeing, the aviation sector still operates in a parallel universe where direct and indirect subsidies are handed out with abandon. In the absence of international action, the EU must follow-up on its proposal to introduce emissions trading as soon as possible and also put forward a package of additional measures to bring about meaningful cuts in emissions” said Dings.

- ENDS -

The full NLR / Peeters Advies report including summary and conclusions can be downloaded from the T&E website:

[http://www.t-e.nu/docs/Publications/2005pubs/2005-12\\_nlr\\_aviation\\_fuel\\_efficiency.pdf](http://www.t-e.nu/docs/Publications/2005pubs/2005-12_nlr_aviation_fuel_efficiency.pdf)

The image below is cleared for European media use for 7-14 December 2005:

Caption: A Lockheed Super Constellation (circa 1955), as fuel-efficient as today's passenger aircraft

Credit: Hulton Archive / Getty Images

High resolution image download from:

[http://www.t-e.nu/images/content/2005\\_12\\_07\\_constellation\\_hultonarchive\\_gettyimages.jpg](http://www.t-e.nu/images/content/2005_12_07_constellation_hultonarchive_gettyimages.jpg)



(1) See IATA Environmental Review 2004 - <http://www.iata.org/ps/publications/9486.htm>

(2) For the full text of the 1999 IPCC report see: <http://www.grida.no/climate/ipcc/aviation/index.htm>

(3) The international aviation sector (along with international shipping) was excluded from the Kyoto Protocol on Climate Change. Under the Kyoto agreement, responsibility for cutting emissions was handed to the International Civil Aviation Organisation (ICAO) <http://www.icao.int/>, a United Nations body. So far there has been no action whatsoever in spite of the fact that CO2 emissions from the sector are growing at 4% per year – faster than every other transport mode.

(4) The European Commission proposed in September that the aviation sector should be brought into the European Union Emissions Trading System (EU-ETS). This is unlikely to happen before 2009 and would require the approval of national governments and the European Parliament before such measures could be introduced.

[http://europa.eu.int/comm/environment/climat/aviation\\_en.htm](http://europa.eu.int/comm/environment/climat/aviation_en.htm)

The real impact of emissions trading depends on how the system is designed. T&E is calling for measures that would result in maximum emissions reductions:

- All flights departing from and arriving at EU airports should be covered. Not just intra-EU flights.

- The system should account for the full climate impact of aviation. CO2 accounts for just 25-50% of greenhouse gas emissions from aircraft.
- Emissions reduction targets should be in line with current Kyoto targets for other sectors
- Emissions permits should be sold by auction, not given away to existing operators

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**About T&E**

T&E is Europe's principal environmental organisation campaigning specifically on transport.

Members are drawn from NGOs in nearly every European country, all of whom promote a more environmentally sound approach to transport. [www.t-e.eu](http://www.t-e.eu)