

No flight plan

How the International Civil Aviation Organisation (ICAO) has blocked progress on climate change for a decade

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European Federation for
TRANSPORT and ENVIRONMENT

Summary

Background

Emissions from aviation are a significant contributor to climate change. In the year 2000, air transport accounted for 4 to 9 per cent of the climate change impact of human activities.

In 1997 the parties to the Kyoto Protocol agreed that greenhouse gas (GHG) emissions from *international* aviation should be 'limited' or 'reduced' working through the International Civil Aviation Organisation (ICAO), a UN agency responsible for the setting of international standards particularly in the fields of safety and security.

In the decade since Kyoto, emissions from aviation have grown faster than any other mode of transport and are expected to continue to grow in the future.

History

Over the same period, ICAO has failed to deliver or support any mandatory policies to deliver emissions stabilisation or reductions. Instead the organisation has attempted to close the door, one by one, on almost every conceivable mandatory policy measure for reducing greenhouse gas emissions from the sector:

1. 2001 - ICAO reaffirmed its opposition to fuel taxes, showing preference for the use of charges. In 2004 ICAO asked Member States not to apply charges until at least 2007 (see below).
2. 2001 - ICAO ruled out the possibility of establishing GHG emission standards for aircraft.
3. 2001 - ICAO opposed the application of closed emission trading schemes for aviation.
4. 2004 - ICAO dismissed any possibility of establishing a global emissions trading scheme for aviation, instead endorsing the inclusion of aviation in existing emission trading schemes (for example, the EU ETS).
5. 2004 - ICAO imposes three-year moratorium on GHG emission charges (although it continues to say that taxes are even worse);
6. 2007 - ICAO Assembly threatens to block the possibility for countries (i.e. the EU) to include foreign carriers into their emissions trading schemes

Forthcoming ICAO Assembly (Montreal, 18-28 September 2007)

There is just one mandatory measure that ICAO still endorses: the inclusion of aviation in existing emissions trading schemes.

However, even this support is under severe threat from a number of states, led by the United States that wish to effectively disable the policy by making it impossible for the EU to include foreign carriers in the scheme, unless an explicit 'mutual agreement' is negotiated with each and every third country that flies from or to its territory.

What to do ?

Given this, T&E is calling on ICAO, at its triennial assembly in Montreal on 18-28 September 2007, to:

1. Convert its support-in-theory for the inclusion of aviation in existing emissions trading schemes into support-in-practice by dropping the 'mutual agreement' approach;

2. Recognize that further mandatory measures will be necessary and ask the ICAO Council to prepare ambitious proposals for the next Assembly.

If these small steps appear not to be within reach, T&E calls on states to

1. reserve their position at the Assembly (which is a clarification that they don't feel bound to the Assembly's conclusions);
2. shift responsibility for climate change away from ICAO, which has clearly failed to deliver.

States should subsequently aim to foster the application of measures at national and regional level, namely:

- proceed with the inclusion of aviation activities, including those of foreign carriers, in existing emissions trading schemes
- internalise the external costs of air transport through kerosene taxes, en-route and airport emission and noise charges;
- end the VAT exemption of airline tickets and of other direct and indirect subsidies, for example through ticket taxes;
- incentivise improvements in aircraft technology through R&D;
- optimise flying routes and Air Traffic Management systems;

Background

Aviation and climate change¹

Emissions from aviation are a significant contributor to climate change. In the year 2000, air transport accounted for 4 to 9 per cent of the climate change impact of human activities. The range reflects uncertainty surrounding the effects of cirrus clouds.

But a lower figure of 2 per cent, often quoted by the aviation industry, applies only to Carbon Dioxide (CO₂) emissions and refers to 1992 data.

Emissions from aviation are growing faster than any other mode of transport. CO₂ emissions from EU international aviation increased by 90% between 1990 and 2005¹. Meanwhile other sectors have reduced emissions. If this trend continues, growth of EU international aviation emissions will offset more than a quarter of the reductions required by Europe's target under the Kyoto Protocol.

Aviation has by far the greatest climate impact of any transport mode, whether measured per passenger kilometre, per tonne kilometre, per € spent, or per hour travelling. Put another way, an airline ticket is one of the most environmentally-damaging goods money can buy.

CO₂ emissions are directly linked to fuel consumption. Every litre of jet fuel (kerosene) burnt leads to 2.5 kg of CO₂ emitted in the air. But today's passenger aircraft are no more fuel-efficient than those that flew half a century ago. When it says fuel efficiency has improved by 70%, the aviation industry is referring to the jet era (since the 1960s). But propeller-driven passenger planes such as the Lockheed Super Constellation were as efficient as typical aircraft flying today.

The growth of aviation has been subsidised every step of the way. Each and every segment of the aviation industry including manufacturers, airlines and airports is subsidised and enjoys major tax exemptions (notably the lack of VAT on international tickets and taxes on kerosene).

The role of ICAO

Established by the so-called Chicago Convention of 1944, the International Civil Aviation Organization (ICAO), an agency of the United Nations, has an important role in the coordination and standardisation of international air transport in fields including air navigation, safety and operating procedures.

The Chicago Convention was negotiated 'in order that international aviation may be developed in a safe and orderly manner'. Environmental protection is not to be found in the latest version of the convention. But the ICAO website states that one of the organisation's strategic objectives is: "Environmental Protection - Minimize the adverse effect of global civil aviation on the environment"²

¹ "Clearing the Air: the Myth and Reality of Aviation and Climate Change" (T&E, Brussels, 2006) www.transportenvironment.org/Article201.html

² http://www.icao.int/icao/en/strategic_objectives.htm

ICAO *standards* are legally-binding once member states have adopted them in national law, but in the area of climate change virtually all of ICAO's work has been in the form of *resolutions* or '*guidance*' to states. These are not legally binding, but form an important cornerstone of regional and national aviation policy. Rather than 'go it alone' states tend to work within ICAO guidance. The EU is no exception in framing policy within this context.

The Kyoto Protocol: responsibility handed to ICAO

The Kyoto Protocol on Climate Change contains provisions for reducing greenhouse gas emissions from aviation, although it treats the sector in a different way to other sources, and proposes different approaches for international and domestic aviation.

Domestic aviation emissions are included in national targets for developed countries that call for an overall reduction in total emissions from all sources of 5.2 per cent for the period 2008-2012 (compared with 1990 levels).

Emissions from international aviation are addressed separately, according to the provisions of Article 2.2:

"Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases...from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively".

Unlike other sectors, responsibility for cutting emissions was not given to individual countries (parties). Instead reductions should be achieved working through international bodies that regulate these modes of transport – ICAO for aviation and IMO for maritime transport.

Ten years after Kyoto: no action

In the ten years since the Kyoto Protocol was signed ICAO has failed to deliver any mandatory policies to deliver emissions stabilisation or reductions. Instead the organisation has attempted to close the door, one by one, on almost every conceivable policy measure for reducing greenhouse gas emissions from the sector. It is a devastating record.

In September 2007, the ICAO Assembly will meet in Montreal for its triennial assembly. If it fails, yet again, to endorse any policy for reducing aviation emissions the only conclusion that can be drawn is that the organisation has manifestly failed in its stated aim to "Minimize the adverse effect of global civil aviation on the environment"³ and in its responsibilities under the terms of the Kyoto Protocol.

The following chapters give an overview of the key decisions ICAO has taken with regard to aviation and climate change over the last decade.

³http://www.icao.int/icao/en/strategic_objectives.htm

1997 – 2001⁴: Resolution from the 33rd ICAO Assembly

In 1999, a special report on *Aviation and the Global Atmosphere*, was prepared at ICAO's request by the Intergovernmental Panel on Climate Change (IPCC). This report aimed to improve the understanding of the impacts of aviation activities on climate. Its main conclusions, according to the Resolution from ICAO's 33rd Assembly, were the following:

- aircraft emit gases and particles which alter the atmospheric concentration of greenhouse gases, trigger the formation of condensation trails and may increase cirrus clouds, all of which contribute to climate change;
- aircraft are estimated (in the base year 1992) to contribute about 3.5 per cent of the total radiative forcing (a measure of change in climate) by all human activities and this percentage, which excludes the effects of possible changes in cirrus clouds, is projected to grow;
- although improvements in aircraft and engine technology and the efficiency of the air traffic system will bring environmental benefits, they will not fully offset the effects of the increased emissions resulting from the projected growth in aviation.

It was clear that the conclusions of this report showed an urgent need to take immediate action to reduce emissions from aviation.

However, the key decisions of the 1997-2001 ICAO working cycle were:

- to confirm a previous (1996) resolution hostile towards kerosene taxation
- to show strong opposition to the establishment of a closed emissions trading scheme for aviation
- to rule out work on emission standards for aircraft

Fuel Taxes – not illegal but strongly discouraged

Fuel taxes are known to be an extremely powerful and 'first-best' tool for reducing energy consumption and oil dependence. There is ample scientific evidence about the long-term impacts of fuel prices on fuel consumption and these impacts can be very effectively demonstrated⁵.

It is a common misconception about fuel taxes that to apply them would be illegal under the terms of the Chicago Convention. In fact, the Chicago Convention only prohibits taxing fuel that is already on board an aircraft when it arrives in a country. In the numerous bilateral air service agreements that have been established, however, this prohibition has been widened to a general tax exemption for fuel on international flights. Nevertheless, a kerosene tax on intra-EU flights is legally feasible with the agreement of the States concerned, as pointed out in the EU Directive on the Taxation of Energy Products (2003/96).

⁴ ICAO works in 3-year cycles. Given the fact that the Assembly meets every three years, all its committees develop work plans for that period; the Committee on Aviation Environmental Protection (CAEP) is no exception. During the periods between two Assemblies the main governing body of ICAO is the Council.

⁵ the strong correlation between fuel prices and transport fuel intensity in an international context can be seen at http://www.transportenvironment.org/docs/presentations/2005/2005-04_transport_climate_change_seminar/2005-04_transport_climate_change_schipper.pdf (p.18)

ICAO is openly hostile to fuel taxation. In 1996, the ICAO Council adopted a Resolution that “*strongly recommends that any environmental levies on air transport which States may introduce should be in the form of charges rather than taxes*”⁶. This resolution was supported at the 33rd Assembly, which “*Recognizes the continuing validity of Council’s Resolution of 9 December 1996 regarding emission-related levies*”.⁷

This text effectively reduces the possibility of developing further work on the application of kerosene taxation as an instrument to internalise the external costs of aviation, including its impacts on climate.

Emission Standards for Aircraft - dropped

Between 1998 and 2001 ICAO’s environmental protection committee CAEP focused primarily on technical and operational measures to reduce emissions from aviation. In the report of the CAEP/5 meeting⁸ the issue of establishing CO₂ emission standards is addressed: “*while this work has not reached the stage where specific recommendations could be made, the conclusion was reached that CAEP should not pursue further the possibility of developing a carbon dioxide standard*”.

Even though the discussion about technical measures was still at an early stage, the Committee decided to rule out the possibility of establishing CO₂ emissions standard for aircraft.

However, ICAO has been active in proposing standards for other aircraft emissions, for example Nitrogen Oxides (NO_x). In a paper from the US Environmental Protection Agency, the application of ICAO NO_x standards in the USA will be an environmental effective measure thus “*the public would be assured they are receiving the air quality benefits of the international standards*”, while observing that “*manufacturers have already been developing improved technology in response to the ICAO standards*” an indication that such regulation foster innovation⁹. However, regarding the possibility of following a similar path to reduce CO₂ emissions from aviation and foster innovation on new aircraft engines, the conclusion was *not to pursue* such a possibility.

Closed Emissions Trading - dismissed

Given the recognition in the IPCC Study *Aviation and the Global Atmosphere* that improvements in aircraft and engine technology and the efficiency of the air traffic system will not fully offset the effects of the increased emissions resulting from the

⁶ Council Resolution on Environmental Charges and Taxes, Adopted by the Council on 9 December 1996 at the 16th Meeting of its 149th Session. <http://www.icao.int/icao/en/env/taxes.htm>

⁷ Resolution A33-7: Consolidated statement of continuing ICAO policies and practices related to environmental protection. <http://www.icao.int/icao/en/env/a33-7.htm>

⁸ The fifth meeting of the Committee on Aviation Environmental Protection (CAEP/5), held in Montreal from 8 to 17 January 2001. <http://www.icao.int/ICDB/HTML/English/Representative%20Bodies/Air%20Transport%20Committee/Working%20Papers%20by%20Session/162/AT.162.WP.1897.en/AT.162.WP.1897.EN.HTM>

⁹ United States Environmental Protection Agency, September 2003. Regulatory Announcement: Proposed Aircraft Engine Emission Standards. <http://www.epa.gov/otaq/regs/nonroad/aviation/420f03029.pdf>

projected growth in aviation, ICAO also started to work on market-based instruments in the framework of CAEP/5 activities.

According to its report CAEP/5 reviewed a comprehensive assessment of a range of potential measures, including fuel and en-route levies, emissions trading and voluntary programmes, all of which would target CO₂ emissions. Regarding the application of emissions trading to aviation, the conclusion of these discussions was that “*a closed emissions trading system does not show cost benefit results to justify further consideration*”. The application of a separate emissions trading scheme for aviation was effectively ruled out by this report, and CAEP clearly endorsed “*that an open emissions trading system is a cost-effective solution for CO₂ emission reductions in the long term*”⁹. As a consequence of this work at CAEP, the 33rd Assembly resolution “*Endorses the development of an open emissions trading system for international aviation*” and “*Requests the Council to develop as a matter of priority the guidelines for open emissions trading for international aviation*”.

2001 – 2004: Resolution from the 35th ICAO Assembly

Based on the conclusions of the Assembly in 2001 the CAEP/6 work cycle was devoted to the identification of measures to ‘limit or reduce’ emissions from international aviation under the framework of ICAO, as requested by the Kyoto Protocol. Given the fact that the previous work cycle excluded the possibility of implementing fuel taxes, emissions standards and closed emissions trading, between 2001 and 2004 the work focused on operational measures, open emissions trading schemes and greenhouse gas emission charges.

Operational Measures

The main step taken by ICAO to promote the use of improved operational measures was the publication of a note on *Operational Opportunities to Minimize Fuel Use and Reduce Emissions* and the holding of two workshops on the subject. The 35th Assembly recognised the progress in this field and “*requests the Council to continue to develop the necessary tools to assess the benefits associated with ATM improvements and to promote the use of the operational measures*”¹⁰. However, the Assembly Resolution does not address the issue that the IPCC report clearly stated: that operational and technology improvements will not fully offset growth in air transport demand, and consequently these measures alone will not address the problem to the extent required.

Greenhouse Gas Emission Charges – a moratorium

The Council Resolution from December 1996 “*Strongly recommends that environmental levies on air transport which States may introduce should be in the form of charges rather than taxes*”. This resolution was reconfirmed by the 33rd Assembly in 2001, which could be seen as a move paving the way towards the use of charges as an instrument to deal with the impacts of aviation on climate.

¹⁰ ICAO - Resolutions Adopted by the Assembly, 35th Session, Montreal October 2004.
http://www.icao.int/icao/en/assembly/a35/a35_res_prov_en.pdf

There are currently systems to collect *en-route emission charges* for aviation. These systems could potentially be used to establish a Greenhouse Gas emission (GHG) charge in which the climate costs associated with an air transport activity could be internalised in the prices, eliminating market failures and ensuring that the market would drive the reduction of aviation emissions.

However, in the 35th Assembly, although the validity of the Council decision recommending the use of 'charges rather than taxes' is confirmed, there is a resolution urging "*Contracting States to refrain from unilateral implementation of greenhouse gas emissions charges prior to the next regular session of the Assembly in 2007, where this matter will be considered and discussed again*". In practice the Assembly was effectively ruling out the use of the policy instrument that it once *preferred to taxes*, for the next three years.

Surprisingly, between 2004 and 2007 ICAO did not discuss GHG emission charges, concentrating its efforts on Local Air Quality emissions charges. From the perspective of the fight against global warming this resolution represented a loss of three years and is likely to be renewed for three more at the next Assembly: yet another delay.

Emissions Trading – ICAO won't set up a global system

The resolution from the 33rd Assembly addressed the use of an open emissions trading scheme as the most promising economic instrument for reducing emissions from aviation. Some stakeholders and countries have expressed the view that any solution to be adopted should be as global as possible, this being the dominant view within the aviation industry.

However, in the discussions at the sixth meeting of the ICAO Committee on Aviation Environmental Protection in 2004 (CAEP/6), it was agreed that an aviation-specific emissions trading system based on a new legal instrument under ICAO's authority "*...seemed sufficiently unattractive that it should not be pursued further*". In practice with this decision the possibility of applying emissions trading as a global solution was dismissed.

The 35th ICAO Assembly instead endorsed "*voluntary trading systems that interested Contracting States and international organizations might propose*" and stated that "*ICAO would provide guidance for use by Contracting States, as appropriate, to incorporate emissions from international aviation into Contracting States' emissions trading schemes consistent with the UNFCCC process.*" (Resolution 35-5)

This statement was the basis for the European Commission's 2006 proposal to include aviation activities in the EU Emissions Trading Scheme (EU ETS)¹¹.

¹¹ COM (2006) 818 Final. http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0818en01.pdf

2004 – 2007: Looking ahead to the 36th ICAO Assembly

During the last decade and more, ICAO decisions have limited the policy instruments that might be used to reduce emissions from international aviation.

After ruling out the use of fuel taxes, the application of emission standards, the establishment of a closed emissions trading scheme or of a global emissions trading scheme for aviation and after asking Contracting States to refrain from implementing GHG emission charges, the ICAO Assembly in September will not discuss any policy measure to be taken directly under the auspices of ICAO. The organisation has taken a number of decisions which have effectively weakened its role to that of 'coordinating' the application of voluntary operational measures. Yet the study ICAO itself commissioned in 1999 from the IPCC show that such an approach would not be enough. Having ruled out almost every conceivable measure for cutting emissions ICAO will now simply assist Contracting States wishing to include aviation activities in existing emissions trading schemes by preparing guidance.

ICAO is failing to meet the 'limitation or reduction' of emissions from international aviation that the Parties of the Kyoto Protocol were seeking to achieve.

The last option is also at risk: ICAO guidance on inclusion of aviation into regional emissions trading systems for aviation

The situation might yet get even worse. During the last three years, the work of ICAO has focused on producing guidance on aviation and emissions trading, i.e., a document that is designed to help Contracting States wishing to include aviation activities in their emission trading schemes.

The guidance document was prepared between 2004 and 2007 by an ICAO task force, and is due to be adopted by the ICAO Assembly in September. This document will not be mandatory, instead taking the form of a set of recommendations to Contracting States wishing to include aviation in their emissions trading schemes.

However, it will constitute an important step, since it will show whether the global aviation community, that ICAO represents, endorses and supports those Contracting States willing to make a first step to address emissions from international aviation. It will also show how serious ICAO was when in previous resolutions it pointed to emissions trading as the best way forward.

In the CAEP/7¹² meeting in February 2007 there was a broad agreement on the content of the guidance, except on one critical point: the ability of a contracting state to include any carrier, regardless of its nationality, in an emissions trading scheme.

The central point of disagreement is whether Contracting States could integrate international aviation emissions from aircraft operators of other Contracting States

¹² The CAEP/7 meeting was held in February 2007 and discussed the progress obtained in the various working groups and task forces between 2004 and 2007.
<http://www.icao.int/ICDB/HTML/English/Representative%20Bodies/Air%20Transport%20Committee/Working%20Papers%20by%20Session/180/AT.180.WP.2016.EN/AT.180.WP.2016.EN.HTM>

into their emissions trading schemes without the consent of those States. There are two opposing approaches under discussion¹³:

- 'Mutual agreement' approach (supported by the US): under this approach, a State or group of States operating an emissions trading scheme would seek to include foreign aircraft operators in the scheme through mutual agreement between the State(s) responsible for administering the scheme and the State in which the aircraft operator is based.
- 'Alternative to mutual agreement' approach (supported by the EU Member States): Under this approach, a State or group of States operating an emissions trading scheme would seek to mandate the inclusion of foreign aircraft operators in a given emissions trading scheme in the absence of specific mutual agreement.

In practice, the 'mutual agreement' approach would mean that before the EU includes a non-EU carrier in the EU ETS (e.g. Continental Airlines) it would have to reach an agreement with the State of that carrier (i.e. the USA). Under the alternative approach, all flights to and from the EU would be included without any need for bilateral agreements.

The problem with the 'mutual agreement' approach is that it would create virtually insurmountable difficulties for any State or States that wish to include aviation activities in their emissions trading schemes (for example, the EU), by forcing them to negotiate hundreds of agreements with all States that fly to their jurisdiction (for example all carriers flying from or to the EU).

It would also potentially undermine the **legal feasibility** and **environmental integrity** of the scheme. The reasons for this are the following:

- *Legal feasibility*: According to the Chicago Convention (which governs international aviation), Article 11, there should be no discrimination of the rules applicable to any airline based on their nationality¹⁴. Unlike guidance on emissions trading, the Convention has legal force, and this 'principle of non-discrimination based on nationality' is one of its key elements. Unless all States agreed with the inclusion in a given emissions trading scheme, the 'mutual agreement' approach currently under discussion would be in opposition to Article 11 of Chicago Convention, since there would be a differentiated treatment of airlines, depending on the fact that their States would agree or not with their inclusion in the scheme (ie, dependent on their nationality).
- *Environmental integrity*: in case some airlines of some States are included in the scheme and others are not, the environmental effectiveness of the scheme might be threatened since it creates a direct economic incentive to fly to those States not covered by the scheme¹⁵. The environmental integrity might be at stake whenever flights outside the scope of the scheme are

¹³ CAEP/7 Information Paper 20: Guidance on Emissions Trading for Aviation. Presented by the Rapporteurs of the ICAO Emissions Trading Task Force.

¹⁴ Chicago Convention, Article 11: "*the laws and regulations of a contracting State relating to the admission to or departure from its territory of aircraft engaged in international air navigation (...) shall be applied to the aircraft of all contracting States without distinction as to nationality*".

¹⁵ The inclusion of aviation activities in an Emissions Trading Scheme is expected to increase the costs of flights, since the operators would have to surrender emission allowances with a given value in a 'carbon market'.

further away than those within the scheme – in this case there is an economic incentive to fly further and consequently to increase the level of emissions.

For ease of understanding the following examples illustrate how the two previous situations could occur. In this example, all EU carriers are addressed by the scheme but Turkey did not agree to have its carriers included (assuming the 'mutual agreement' approach):

- *Legal feasibility*: European Carriers flying to Turkey will have to surrender allowances for their emissions; the Turkish airlines flying the same routes will not have to surrender those allowances. The EU airlines would be clearly discriminated based on their nationality and the provisions of Article 11 of the Chicago Convention would have been violated;
- *Environmental integrity*: a passenger buying a ticket for a flight, with some flexibility in his destination, could decide between a flight, for example, to Greece or a flight to Turkey. The former possibility would probably have a higher climatic impact, since this passenger would have to fly further. However, since Turkey was outside the scope of the EU ETS the price signal would be the opposite: when flying to Greece the passenger would have to pay for its emissions and the ticket would be more expensive; when flying to Turkey there were no costs with emissions. The price signal would in this case work against the environment and corrupt the scheme.

Apart from the practical, legal and environmental problems associated with the 'mutual agreement' approach this would also represent a major failure in ICAO climate policy. It is clear that such an approach would make it practically impossible for countries to include aviation in their emissions trading schemes – which is the last policy option not ruled out by ICAO. With such an approach, this policy measure would be left to be subject of bilateral negotiations between Contracting States, without any coordinated global approach left for discussion.

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