

To: EU 15 Environment Ministers

Re: Aviation and the environment: call for action

Brussels, 16 February 2001

Dear Minister of Environment,

We are writing to you to draw your attention to ongoing policy developments on the important issue of **aviation and the environment** and to urge you to actively engage in these developments. In the present letter, we invite you to take some concrete steps and look forward to your reply.

Background on aviation and the environment

Aviation, as you know, has multiple effects on the environment. These include local air pollution (NO_x, HC, toxins, etc.), climate change (CO₂, NO_x, water vapour, SO₂) and noise. The impacts of aviation on climate change are mostly exempt from any regulation. In addition, aviation is largely exempt from kerosene taxation, thus contributing to inefficiencies in the transport system as a whole.

A *Special report on aviation and global atmosphere* was published in 1999 by the Intergovernmental Panel on Climate Change and is the most important scientific reference in relation to aviation and climate change. The main findings of the report show that aviation currently contributes 3.5% of the total radiative forcing; this figure could be higher than 15% by 2050 if no measures are taken, even after accounting for expected technological improvements.

Policy developments

As you know, the European Union member states have committed to reduce their global emissions by 8% by 2008-2012 in a burden sharing agreement. **Domestic** aviation emissions are included in this agreement for emissions reductions. However, emissions from **international** aviation, i.e. flights between the continents, as well as within the EU, are outside this target. Article 2.2. of the Kyoto Protocol states that Parties should reduce these emissions working through the *International Civil Aviation Organisation*.

At its last meeting in January 2001, the *Committee on aviation environmental protection* of ICAO agreed a resolution for adoption by the full assembly, the highest ICAO decision-making body, which contains the following elements:



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- Voluntary mechanisms could serve as a first step towards future action to further reduce emissions.
- Further studies and guidance should be developed for the identification and calculation of emissions-related costs and their application.
- Guidelines should be developed for an open emissions trading system for international aviation.

Furthermore, in its future work programme, CAEP refers to the "possible use of environmental charges to address gaseous emissions from aviation".

This resolution will be discussed during the 34th ICAO assembly, which will take place from 25 September to 5 October 2001.

The European Commission, as you know, has released a communication called *Air transport and the environment: towards meeting the challenges of sustainable development*. In this 1999 Communication, the Commission recommends that the EU and its member states should envisage taking unilateral action if ICAO fails to take appropriate decisions. The Communication states: "On the basis of the results in ICAO by the end of 2001 the Commission will present a re-assessment of the balance between global, Community and local measures with a view to ensuring fulfillment of the environmental goals laid down in the Amsterdam Treaty and the Kyoto Protocol and update priorities, where required, by lack of progress at international level and/or new scientific evidence on environmental impacts of air transport".

T&E, which is an observer to the CAEP on behalf of a large network of international environmental non-governmental organisations (NGOs), has made the following recommendations (please find the full document appended to this letter):

- ICAO should establish a CO₂ target consistent with the Kyoto Protocol (5% below 1990 levels) to be achieved by the first budget period (2008-2012);
- ICAO should enable the introduction of market-based mechanisms to address CO₂ emissions in a two-tiered manner: (1) by instituting an emissions charge, on both the LTO and cruise cycle, by the 34th Assembly at the latest; and (2) achieving the full 5% below 1990 emissions level target, either through a continuation of the charge and/or, after the adoption of the Kyoto Protocol guidelines and mechanisms, the introduction of an open emission trading program that would begin no later than the start of the first budget period (2008) (*in this latter case, most part of reductions in the EU should be done through policies and measures*).
- To control all other aircraft greenhouse gas emissions, ICAO should establish: (1) a NO_x cruise standard and (2) a market-based mechanism to control all emissions during the cruise phase, including potentially weighting CO₂ emissions to fully reflect the total radiative forcing (= global warming potential) attributable to the sector.
- ICAO should inform COP7 of how emissions will be reduced and by how much. If no appropriate solutions are decided by the next ICAO assembly, COP7 should adopt a decision on how to resolve the allocation issue, followed by a work plan and immediate implementation plan.

It is important that the European Union and its member states remain involved and actively pursue solutions on a global scale. However, our assessment of the ICAO process leads us to conclude that it is highly unlikely that sufficient steps will be taken globally to change the aviation sector into an ecologically sustainable industry in the foreseeable

future. We therefore consider it essential for the EU to assume its own responsibilities when dealing with this environmental problem.

With this letter, we urge you to engage in this environmentally highly relevant issue, on both the global and the EU levels.

Firstly, in order to speed up developments in ICAO and at the Climate Convention, we urge you to:

- Ask the Conference of the Parties to the Climate Convention to adopt a decision to resolve the allocation issue and include international aviation emissions in the budgets for emissions reductions of the Parties, alongside domestic aviation emissions.
- Actively support the European Commission's position in ICAO/CAEP, including the introduction of a charge system world-wide. The charge is administratively and politically easy to introduce and implement.

Secondly, and in parallel to the global efforts, we urge you to act at the European level as follows:

- Interact with your fellow transport and finance ministers, who are also responsible for this dossier, and agree on a common policy and follow-up actions at the EU level that would ensure the introduction of an environmental charge for aviation.
- Ask the Commission in your next Council meeting to publish by the end of 2001 a proposal for a Regulation on the introduction of an effective European environmental aviation charge that should become effective by 2002.

We would kindly like to invite you to send us a letter of confirmation in which you address the following questions:

- What is your position on the introduction of a global economic instrument to secure the ecologically sustainable development of the aviation industry?
- What steps will you take towards the aviation sector that allows the European Union to fulfil the requirements of the Amsterdam Treaty and the Climate Convention?

We look forward to a quick reply and would be happy to provide further information to your cabinet or your services on this issue.

Yours sincerely,

Beatrice Schell
Director T&E

Copy: Transport and finance ministers of the EU member states; European Commission; Members of the Transport, Environment and Finance committees of the European Parliament.

COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION (CAEP)

FIFTH MEETING Montreal, 8 to 17 January 2001

Agenda Item 2: Review of market-based options to limit or reduce emissions

POSITION ON MARKET-BASED OPTIONS

(Presented by T&E/ICSA)

SUMMARY

This paper presents the position of the environmental community, as represented by T&E on behalf of ICSA¹, on the design and use of market-based options to address aviation's greenhouse gas emissions. In light of existing international climate agreements, the findings of the IPCC Special Report on Aviation and the findings of WG 5 and the FESG, we urge the CAEP to recommend that the ICAO 33rd Assembly take immediate action to reduce aviation's greenhouse gas emissions. Voluntary measures are not sufficient to respond to the provisions laid out in Article 2.2 of the Kyoto Protocol and should not be further developed by the CAEP and ICAO. CAEP and ICAO should urgently develop a strategy to address all greenhouse gas emissions from aviation, with CO₂ and NO_x as first priorities. In addition to supporting regional initiatives to achieve these goals, we further recommend that:

- ICAO should establish a CO₂ target consistent with the Kyoto Protocol (5% below 1990 levels) to be achieved by the first budget period (2008-2012);
- ICAO should enable the introduction of market-based mechanisms to address CO₂ emissions in a two-tiered manner: (1) an emissions charge, on both the LTO and cruise cycle, by the 34th Assembly at the latest; and (2) a system for achieving the full 5% below 1990 emissions level target, either through a continuation of the charge and/or, after the adoption of the Kyoto Protocol guidelines and mechanisms, the introduction of an open emission trading program that would begin no later than the start of the first budget period (2008).
- To control NO_x emissions, ICAO should establish a NO_x cruise standard and a market-based mechanism to control all emissions during the cruise phase, including potentially weighting CO₂ emissions to fully reflect the total radiative forcing attributable to the sector.
- ICAO should inform COP7 of how emissions will be reduced and by how much. If no appropriate solutions are decided by the next ICAO Assembly, COP7 of the UNFCCC should decide on a workplan and immediate implementation plan, by COP8 at the latest.

¹ The International Coalition for Sustainable Aviation (T&E ICSA) was formed in 1998 as a structured international network of environmental NGOs who share a common concern with the problems of air quality, climate change and noise in relation to aviation, and are committed to developing and providing technical expertise and common policy strategies to the work of ICAO, with a view to reducing emissions and noise from the aviation sector. Current membership consists of the Aviation Environment Federation,

1. INTRODUCTION

1.1 Aviation has a number of impacts on the environment, including local air pollution (NO_x, HC, toxins, etc.), climate change (CO₂, NO_x, contrails, SO₂) and noise. The impacts of aviation on climate change are mostly exempt from any regulation. In addition, aviation is largely exempt from kerosene taxation, thus contributing to inefficiencies in the transport system as a whole.

1.2 Working to address climate change, over 180 nations have ratified the United Nations Framework Convention on Climate Change (UNFCCC), which has as the ultimate objective the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992). The Conference of the Parties to the Convention (COP) meets annually to work towards this aim.

1.3 In 1997, the developed countries and economies in transition (Annex I Parties) reached an agreement, under the Kyoto Protocol, to reduce their greenhouse gas emissions to about 5% below 1990 levels between 2008 and 2012. While domestic aviation emissions are accounted for in these countries’ emissions totals, emissions from international aviation are not (Kyoto Protocol, Decision 2/CP3).

1.4 According to the *IPCC Special Report on Aviation and the Global Atmosphere*, aviation contributes to a range of greenhouse gas emissions, including CO₂, NO_x and contrails. Currently representing 3,5% of total anthropogenic radiative forcing (this is as much as the total contribution of the UK to global warming), aviation’s total human-induced climate change impact by 2050 could represent 15% (or higher if reductions are made in other industries) if no measures are taken to reduce these emissions, even after accounting for expected technological improvements. CO₂ emissions account for a large proportion of aviation’s impact on climate change and are predicted to more than double between 1990 and 2015. However, other emissions such as contrails and NO_x account for around two thirds of the current climate change impact of aviation emissions – with CO₂ being only one third (IPCC, 1999).

2. BACKGROUND

2.1 Geographic Coverage

2.2 While the most environmentally effective emissions limitations would be applied world-wide, to remain consistent with the Kyoto Protocol (which applies binding emission targets to sources in Annex I countries), limitations at this point should be applied to all flights to and from Annex I Parties alone. While not global, this would capture the majority of flights—approximately 80% are from Annex I Parties; in addition, such an approach would limit competitiveness concerns that could arise if the limitation was applied to Annex I flagged-carriers.

2.3 Again, while globally applied measures are more desirable, we encourage initiatives that move forward in achieving immediate reductions in aviation's greenhouse gas emissions, including regional initiatives.

2.4 Emission limitation obligations remain the ultimate responsibility of Parties - that is, governments should have an international legal obligation to reduce emissions from international civil aviation. Therefore, the COP should retain ultimate responsibility to ensure that action is taken to reduce aviation's greenhouse gas emissions.

2.5 **Environmental Levies**

2.6 Environmental levies would reduce the impacts of aviation on the environment through encouraging the development and uptake of new technologies by the industry while also regulating the demand; and at the same time internalise aviation's external costs.

2.7 The existing framework makes the introduction of taxes, and to a lesser extent charges, a complex, but in our view solvable issue at the international level. While the bilateral agreements would require a substantial effort to amend, the Contracting States of ICAO could decide to amend the Chicago Convention in light of their countries commitments to reduce greenhouse gas emissions from all sources. In the case of a charge, it is important to note that the costs covered under the ICAO definition also include external costs, such as environmental costs.

2.8 The charge will be most effective in the long term, as it will allow an adjustment of transportation demand as well as the development of new technologies. Studies and experience have shown that a levy is most effective when applied closest to the source of pollution, in this case the combustion of fuel (CE, 1998). Experience with a system similar to a charge has also shown that an emissions fee on the landing and take off cycle is easy to calculate and apply. While there is no precise data yet concerning emissions in-flight, several methods can be used to estimate those emissions, e.g. based on fuel use.

2.9 **Emissions Cap and Trade**

2.10 Emissions cap and trade systems would reduce the environmental impacts of aviation emissions by placing a limit on emissions and therefore influencing demand and encouraging the development of new, cleaner technologies. Under an open emissions cap and trading program for international aviation, a cap on overall aviation emissions would be established and aviation sources could meet their limit by trading portions of their allowable emissions levels with emission credits from the Kyoto Mechanisms, thereby placing a price on environmental damage. In an aviation emissions trading system, a cap would be placed on the total allowable emissions from the aviation sector.

2.11 The cap should be expressed in absolute reductions (i.e. absolute tonnage goals, rather than rate-based targets). While a rate-based limit could slow the rate of climate change impacts resulting from aviation emissions, it will not directly control the total amount of greenhouse gas emissions from international aviation since it is the total amount of greenhouse gas emissions going into the atmosphere that is contributing to global warming.

2.12 With respect to permit distribution, auctions (as opposed to grandfathering and benchmarking) more efficiently allocate allowances, provide stronger incentives for innovation, and can avoid politically contentious arguments over the distribution of allowances. Furthermore, auctioning generates revenues that can be used for various environmental purposes.

2.13 Use of Revenues

2.14 Determining the use of the revenues is an important aspect of either levies or trading. If used in an appropriate way, these revenues would contribute to enhancing the environmental effectiveness and the equity of the program. The use of the revenues should in any case be decided by the national governments and should in no case be decided by the aviation sector itself. Examples of the use of revenues could be: setting up an environmental fund, a compensation fund for sectors (e.g. tourism), to countries (e.g. third countries) that will be affected by the measure, to support the development and/or implementation of new technology that reduces greenhouse gas emissions, or used to reduce other taxes.

2.15 Aviation-Specific “Offsets”

2.16 The Parties are currently working to resolve issues surrounding the use of “offsets”, including carbon sequestration; however, designing an aviation-specific offset system would require that ICAO Contracting States agree on the resolution of a similar set of criteria for aviation-specific “offsets”. Due to the added complexity resulting from an aviation-specific “offset” program, ICAO should not consider an aviation-specific offset program.

3. RECOMMENDATIONS

3.1 Given the urgent nature of the climate change problem and the commitment by developed countries and economies in transition to reduce their greenhouse gas emissions to 5% below 1990 levels by 2008-2012, as a near term step. Given that all other sectors of the national economies are included under these targets, including domestic aviation. Given that CO₂ emissions from aviation represent only one-third (and possibly less) of the total global warming effect from aviation. Given that aviation emissions are growing significantly—by 2010, international aircraft CO₂ emissions will have increased by 76% compared to 1990 levels (Velzen and Wit, 2000). We urge the CAEP to recommend that the 33rd ICAO Assembly take immediate action to address climate change in the following manner. If no appropriate solutions are decided by the next ICAO Assembly, COP7 of the UNFCCC should decide on a work and immediate implementation plan, by COP8 at the latest.

3.1.1 International efforts to address aviation emissions should include all greenhouse gases, with CO₂ and NO_x as first priorities, in the manner described below. Also, early action needs to be taken by ICAO to begin the internalization of costs and to secure both near-term and long-term reductions in aviation’s greenhouse gas emissions. To that end, ICAO should establish a CO₂ target consistent with the Kyoto Protocol (5% below 1990 levels) to be achieved by the first budget period (2008-2012), in the manner described in section 3.1.2.

3.1.2 Agree to the introduction of market-based mechanisms to address CO₂ emissions in a two tiered approach that starts immediately with an emissions charge and then for the 2008-2012 Kyoto Protocol first budget period, extends the charge and/or moves to an open emissions trading program. This approach would encourage immediate reductions by utilizing a mechanism that can be instituted immediately, i.e., build upon the current system of charges.

3.1.3 The 33rd ICAO Assembly should strongly urge Contracting States to establish an emissions charge, on both the LTO and cruise cycle, to begin sending a price signal that encourages emissions reductions towards the 5% below 1990 emissions level target, mentioned above. Revenues generated from this charge should be given to national governments with the revenues used for environmental purposes, including supporting the development and implementation of new technologies that achieve emissions reductions, or to offset other taxes. The design and mechanisms for the charge should be in place and implementation occur at the latest by the 34th Assembly.

3.1.4 The second tier should be aimed at the achieving the full 5% below 1990 emissions levels target, either through a continuation of the charge and/or, after adoption of appropriate guidelines and mechanisms under the Kyoto Protocol, the introduction of an open emissions trading program that would begin no later than the start of the first budget period (2008). The mechanism adopted for the second tier should be selected based upon its ability to achieve the 5% below 1990 levels target for CO₂, taking into account the total global warming impact.

3.1.5 In any case, the program must include stringent monitoring, verification, enforcement, and compliance provisions that hold participants accountable for ensuring that their total emissions do not exceed allowable levels, consistent with decisions made by the Parties.

3.1.6 As the overriding objective is to reduce aviation's impact on climate, rather than just to reduce its CO₂ emissions, it is extremely important for CAEP to control the impact of other greenhouse gas emissions during the cruise phase, most notably NO_x and H₂O. In the first instance, to be implemented as soon as possible, ICAO should establish a NO_x cruise certification standard to ensure that there is no unit (i.e., per km) increase in NO_x. While this will limit NO_x emissions it provides no guarantee that cumulative NO_x emissions will not increase in the future. Therefore, as a second stage, ICAO should include the use of market-based mechanisms to control all emissions during the cruise phase. This may involve weighting CO₂ emissions to fully reflect the total radiative forcing attributable to the sector. This approach would reduce the total emissions at cruise while providing flexibility in achieving reductions.

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References:

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