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Getting Global Cooperation: ICAO and Climate Change

by

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Sustainable International Civil Aviation

The attached Occasional Papers have been prepared by a group of scholars associated with the Institute of Air and Space Law (IASL) at McGill University. They are the result of a collaborative effort between the IASL and the Centre for International Sustainable Development Law and are designed to be part of a book prepared by authors from both groups which will eventually be published by the Cambridge University Press under the title *Sustainable International Civil Aviation*.

As the title of the book suggests, bringing together these various scholars and papers is the central theme of the sustainable development of international aviation. In particular, the work of the International Civil Aviation Organization (ICAO), the primary United Nations body tasked with regulating the environmental aspects of international aviation, and the provisions of the Chicago Convention which lays down powers of the Organization and the fundamental rules of international air law, form the primary focus of this collection. At the next ICAO Assembly in September-October of 2016, ICAO has the ambitious mandate to finalise a global scheme to limit CO2 emissions from international aviation. As many of the articles contained in the book are of immediate relevance to the discussions due to take place at ICAO, publishing and disseminating these draft chapters will contribute to the growing interest and debates on the issue of the environmental impact of aviation. It is hoped that these papers will contribute to the work of the Assembly and that informed readers and delegates participating at the ICAO Assembly will have constructive comments to share with the authors.

Readers are invited to send their comments to the authors whose e-mail addresses are set out on the title page of each paper as well as a copy to the following address: edannals.law@mcgill.ca

The authors and the Editors of this collection of papers thank all readers for their attention and their comments.

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SUMMARY

The International Civil Aviation Organization (ICAO) as solution for climate change: Is ICAO suitable to address climate change issues given its constitutional framework and representation?

The issue:

- Whether the lack of a specific reference to "environmental protection" in ICAO's constitutional framework diminishes its effectiveness in addressing climate change issues?
- Whether ICAO's governing structure facilitates or inhibits participation by its Member States?
- Whether ICAO has made concrete progress in addressing greenhouse gas (GHG) emissions from aviation?

Its importance:

- Together with its unyielding growth rates, concerns over the environmental impact of the aviation industry has risen.
- The Kyoto Protocol has tasked ICAO to reduce GHG emissions from the aviation industry.
- ICAO is instrumental in laying down standards and recommended practices among its members.

The treaty law:

- Absence of any reference to environment in the objectives of ICAO under Article 44 of the Chicago Convention
- Governing structure of ICAO under Articles 48, 50, 56, 58, and 59

The analysis:

- Despite the lack of reference to environmental concerns as part of its objectives, ICAO has adopted environmental protection and sustainable development of air transport as part of its strategic objectives.
- Still, the adoption of environmental protection as a strategic objective does not amount to an amendment to the Chicago Convention. Arguably, in cases of

conflict, the development of air transport, which is the main focus of the text of Chicago Convention, would trump environmental protection.

- The existing structure of ICAO (the once in every three years meeting of the Assembly, and the limited membership in the ICAO Council) poses significant barriers to participation and engagement from Member States, a *sine qua non* for addressing aviation and climate change issues.
- The constituency of ICAO, which are mostly delegates from civil aviation authorities and ministries of transport of Member States, has brought about the tendency of the Organization to examine climate changes issues from an aviation perspective and not *vice versa*. The active participation of industry stakeholders and the restriction of access of environmental non-government organizations may result to an unintentional bias in the rule-making process of ICAO.
- ICAO has made concrete progress in addressing GHG emissions in aviation. ICAO is in the process of adopting a CO_2 standard and developing a global Market-Based Measure scheme for international civil aviation.

Options for decision-makers:

1) ICAO may amend the Chicago Convention to address environmental issues.
2) ICAO may explore ways to further engage its Member States, for example, by empowering its seven regional offices.
3) No action on the part of decision-makers, which may result in the non-resolution of climate change issues in aviation.

GETTING TO GLOBAL COOPERATION: ICAO AND CLIMATE CHANGE

by

Alejandro Piera•

I. INTRODUCTION

The success of international aviation has not been without cost. As the sector continues to achieve unyielding growth rates, concerns over its environmental impact have risen in tandem. Although ICAO has discussed environmental protection in connection with aviation since the 1970s, climate change issues are relatively new. Ever since the Kyoto Protocol entrusted the International Civil Aviation Organization (ICAO) to handle GHG emissions from international aviation, the organization has been at the center of the storm. This chapter seeks to explore ICAO's involvement in climate change issues, its merits and shortcomings, as well as to identify better ways for the organization to handle GHG emissions from international aviation, in particular bearing in mind the recent agreement to develop a global MBM scheme. Understanding the constraints under which ICAO operates is central to determining its limitations and establish realistic corrective actions to facilitate not only its adoption and implementation, but more importantly, participation in ICAO's global MBM.

To this end, the chapter discusses two main topics. Firstly, it analyzes the suitability of ICAO's institutional setting to handle climate change issues. It digs into the organization's aims and objectives as set out in the *Chicago Convention* and its strategic objectives. It examines whether the lack of a specific reference to "environmental protection" in the organization's constitutional framework presents a problem. In addition, this chapter looks into ICAO's governing structure and considers whether it facilities or inhibits participation by member States. Given aviation's global nature, broad participation and

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member State engagement are desired attributes of any measures intended to address climate change issues. Also, this chapter explores the nature of the organization's constituency, the influence of industry stakeholders in the formulation of environmental policy and the lack of presence of representatives of international civil society. It pays close attention to the work of ICAO's Committee on Environmental Protection (CAEP), the merits and shortcomings thereof, as well as perceived structural deficiencies. CAEP has been at the forefront in the development of environmental regulations applicable to international aviation and will continue to play a leading role in addressing GHG emissions given that it handles most of the technical work.

Secondly, through an examination of all relevant Assembly resolutions and discussions within the Council, the chapter studies ICAO's specific involvement in climate change issues. Although ICAO has in the past taken many initiatives to tackle climate change, the chapter focuses on five key aspects: (1) the CO_2 standard; (2) State action plans; (3) the aspirational goals; (4) the framework for MBMs; and, (5) the global scheme. These topics adequately illustrate the challenges faced and the political implications involved. Similarly, they highlight unresolved issues and various opportunities for improvement that lie ahead. These will be enormously valuable in designing and bringing into operation the global MBM scheme for international aviation that the 38th Assembly has decided to pursue. Finally, the chapter provides some concluding observations with some suggested realistic corrective actions that ICAO may take to better handle the issue of GHG emissions from international aviation.

II. ICAO'S INSTITUTIONAL SETTING

Adopted on 7 December 1944 and having entered into force on 4 April 1947, the *Chicago Convention* serves as the constitutional framework for international air transport.[1] In addition to setting out basic rules to promote the safe and orderly development aviation,[2] the *Chicago Convention* established ICAO.[3] To date, 191 States are party to the *Chicago Convention* and therefore members of ICAO.[4] Through the adoption of its standards and recommended practices (SARPs), this specialized UN-agency has been instrumental in laying down the foundational grounds that has allowed international civil aviation to

[1] See *Convention on the International Civil Aviation*, 7 December 1944, 15 U.N.T.S. 295, ICAO Doc. 7300/06 [*Chicago Convention*]. See generally Paul Stephen Dempsey, Public International Air Law, (Montreal: Institute and Center for Research in Air & Space Law, 2008) [*Dempsey, Public International Air Law*].

[2] Amongst others, these rules address issues such as the principle of exclusive sovereignty over a State's airspace, exclusion of military aircraft, prohibition on the use of weapons against civil aviation, right of non-scheduled flights, cabotage, requirement of prior approval of the State concerned for pilotless aircraft, provisions on prohibited areas, customs and immigration, measure to prevent spread of communicable diseases, airport and air navigation charges, nationality of the aircraft, search and rescue, fuel tax exemptions, and adoption of standards and recommended practices. See *Ibid*, *Chicago Convention*, arts. 1-42.

[3] *Ibid*, art. 43.

[4] See ICAO, Convention on International Civil Aviation, signed at Chicago on 7 December 1944.

evolve from perilous beginnings to the safest mode of transportation.[5]

A. OBJECTIVES

The *Chicago Convention* sets out ICAO's main objectives.[6] These may be summarized as follows: i) develop principles to foster progress of international air transport; ii) ensure safe and orderly growth; iii) encourage infrastructure expansion; iv) avoid discrimination; and, v) play a vigilant role to ensure that the rights of all member States are respected.[7] These objectives were established in the early days of aviation when the organization's institutional framework served to encourage the growth of the sector and to ensure its stability in the post World War II era. In anticipation of aviation's potential benefits of enhancing connectivity and encouraging economic prosperity, the drafters of the *Chicago Convention* wanted to guarantee that international air transport would develop in a "safe, regular, efficient, and economical" manner to "meet the needs of the people of the world."[8] Never in their wildest dreams could they have envisioned that the tiny air transport sector would have reached its current dimensions. It is not surprising that the word "environment" is not even mentioned once throughout the *Chicago Convention*; the text pays much more attention to "growth" and "development" which, at the time, were main concern of the drafters. As China has noted, "the development of international air transport is [ICAO's] first priority."[9]

This historical context explains why ICAO's institutional framework heavily favors the expansion of air transport.[10] Some commentators therefore see the organization's objectives as "seemingly weighted against the needs of the climate system."[11] Similarly, others claim that ICAO's own legal framework and its institutional setting are not necessarily conducive to address environmental issues such as climate change. [12]

ICAO's structural characteristics and its natural tendency to promote the growth and development of the air transport sector pose major challenges when the organization considers policies oriented at curbing aviation's environmental externalities. Environmental policy at ICAO must be limited to measures that reduce aircraft engine emissions without constraining the

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[5] See Chicago Convention, *supra* note 1, arts. 37 & 38.
[6] *Ibid* art. 44.
[7] *Ibid*.
[8] *Ibid*, art. 44 (d).
[9] See ICAO, A37/WP-181 at 2.4.
[10] See Transport and Environment, "Global Deal or No Deal? Your Free Guide to ICAO's Triennial Assembly", online: <www.transportenvironment.org/sites/te/files/publications/2013%2009%20Your%20Guide%20to%20ICAO_final.pdf>. [*Transport & Environment, Global Deal or no Deal*] (suggesting that aware of the sector's environmental impacts" since the 1970s, ICAO has demonstrated "no willingness to constrain growth").
[11] See Andrew Macintosh, "Overcoming the Barriers to International Aviation Greenhouse Gases Emissions Abatement" (2008) 33:6 Air & Sp. L. at 411[*Macintosh*].
[12] See Kati Kulovesi, "Addressing Sectoral Emissions Outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism" (2012) 21 RECIEL 193 at 198 [*Kulovesi*, *Addressing Sectoral Emissions*].

growth of air transport in any way. Above all these are the organization's core aims and objectives.

ICAO's constitutional framework places severe limitations on what the organization can actually accomplish in the environmental field. There might be times when specific measures ought to be put in place in certain regions or locations seeking precisely to restrict growth in order for international civil aviation to develop in a sustainable manner. Yet these measures would directly conflict with the aims and objectives of ICAO as set out in the *Chicago Convention*. It is on the basis of this contradiction that ICAO's constituents will most likely argue against or simply reject any such growth-limiting proposals. By way of illustration, some States have argued that emissions-related charges are incompatible with the aims of the *Chicago Convention* since they place incremental burdens on the orderly development of air transport.[13]

Within ICAO, there is also a strong perception that the organization's core business is to deal with issues of air navigation, safety and security.[14] For instance, while pointing out that ICAO has devoted too much attention to climate change issues, one State "expressed doubt that [climate change] carried the same weight as safety and security and other tasks."[15]

In an effort to remedy the absence of a clear environmental objective in the *Chicago Convention*, ICAO has, through various proposals developed by the Secretary General with input from the Council, adopted a number of different strategic objectives addressing environmental issues. For instance, for the first-time ever, ICAO conducted a reassessment of its main objectives in 1997.[16] Following this exercise, the Council approved an action plan with strategic objectives addressing issues such as SARPs, strengthening the legal framework, air navigation, and technical cooperation.[17] Although the growing concern over aviation's environmental impact was noted in the action plan, ICAO did not establish a specific objective for environmental protection.[18] In addition to laying down the organization's vision and mission, ICAO developed a new set of strategic objectives in 2005.[19] At this time, "[m]inimizing the adverse effect of global civil aviation on the environment" became one of the aims of the organization.[20] For the 2010-2013 triennium, ICAO adopted three strategic objectives one of which dealt with "environmental protection

[13] See ICAO, CSG-LAEC/1 at 3-1.
[14] See Lionel Alain Dupuis, Discours d'adieu du Représentant permanent du Canada au Conseil de l'OACI, Doyen des Membres du Conseil (29 June 2011) (on file with the author) (noting that safety and air navigation are ICAO's priorities).
[15] See ICAO, C-MIN 199/13 at 15.
[16] ICAO, Guiding International Civil Aviation into the 21st Century, online: ICAO <www.icao.int/Documents/strategic-objectives/sap1997_en.pdf>.
[17] *Ibid*.
[18] *Ibid*.
[19] ICAO, Strategic Objectives of ICAO for 2005-2010, online: ICAO <www.icao.int/Documents/strategic-objectives/strategic_objectives_2005_2010_en.pdf>.
[20] *Ibid*.

and sustainable development of air transport."[21] Here, the objective was to "[f]oster [a] harmonized and economically viable development of international civil aviation, [while] not unduly [harming] the environment." Finally, in 2013, the 38th Assembly endorsed a proposal of the Council to adopt new strategic objectives for the 2013-2016 triennium. While addressing key areas of concern to ICAO such as safety, security, and air navigation, this latest iteration of the objective de-links air transport from environmental protection.[22] In other words, the objective seeks to "[m]inimize the adverse environmental effect of civil aviation activities" while "[fostering] ICAO's leadership in all aviation-related environmental activities."[23]

The fact that environmental protection now forms part of ICAO's strategic objectives is very indicative of the relevance that this issue bears for the organization's activities. There is no doubt that presently, ICAO is much more engaged with environmental issues than it previously was, and it has allocated significantly more financial resources to the issue.[24] However, these strategic objectives by themselves do not amount to an amendment or a re-writing of the organization's aims as set out in the *Chicago Convention*. In practice, the fact that the *Chicago Convention* does not spell out "environment" as one of ICAO's main objectives does pose a problem. Arguably, in cases of conflict, the development of air transport would trump environmental protection. For instance, one State has said that "ICAO should put the development of international air transport as its first priority bearing in mind the mandate of Article 44 on the aims and objectives of ICAO in the *Chicago Convention*."[25] In spite of the foregoing, it seems very unlikely that, at least in the near future, the *Chicago Convention* will be amended to correct these deficiencies.

B. GOVERNING STRUCTURE

ICAO consists primarily of an Assembly, a Council, a Secretariat and other technical bodies that report to the Council such as the Air Navigation Commission (ANC).[26] For the purpose of this thesis, consideration will be given

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[21] ICAO, Strategic Objectives 2011-2012-2013, online: ICAO <www.icao.int/Documents/strategic-objectives/strategic_objectives_2011_2013_en.pdf>.

[22] See ICAO Doc. 10030, Budget of the Organization 2014-2015-2016, at 24 [*ICAO, Budget 2014-2016*].

[23] ICAO, Strategic Objectives 2013-2016, online: ICAO <www.icao.int/about-icao/Pages/Strategic-Objectives.aspx>.

[24] While ICAO's budget for the triennium 2008-2010 only provided for CA$ 5.1 million for the strategic objective of environmental protection, this jumped to CA$ 8.5 million for the following triennium (2011-2013). See ICAO Doc. 9895, Budget for the Organization 2008-2009-2010 at 11; ICAO Doc. 9955, Budget for the Organization 2011-2013-2013 at 12. For the triennium 2014-2016, the 38th Assembly approved a budget of roughly CA$ 14 million for environmental protection activities. See ICAO Doc. 10030, Budget for the Organization 2014-2015-2016 at 10. While environmental protection still represents less than 2 per cent of ICAO's overall budget, safety accounts for roughly 10 per cent and air navigation for 9.5 per cent. *Ibid*. Of all the strategic objectives established for the 2014-2016 triennium, environmental protection showed the largest increase compared to the previous triennium. *Ibid*.

[25] See ICAO, A37-WP/181 EX/32.

[26] See *Chicago Convention*, *supra* note 1 arts. 48, 50, 56, 58 & 59.

to the Assembly and the Council.

As the supreme body of the organization, the Assembly is responsible for: i) electing States to the Council; ii) approving the budget; iii) considering proposals to amend the *Chicago Convention*; iv) delegating prerogatives to the Council, and, v) considering reports from the Council.[27] Initially the *Chicago Convention* stipulated annual Assembly meetings.[28] However, on 14 June 1956 the Assembly adopted a Protocol to amend the *Chicago Convention* and changed the annual frequency of its meetings to no less than once every three years – in practice this has meant a meeting every three years.[29]

This amendment marks one of the most unnoticed but profound structural changes that ICAO has ever undertaken. Less frequent sessions have diminished the Assembly's role,[30] while "strengthening the position and influence of [the Council]."[31] As one commentator notes, with this change, "the powers of the Assembly have eroded."[32] The change has progressively dissuaded active participation of member States other than those fortunate enough to have Council representation. Although member States do attend ICAO's triennial Assembly sessions, they do so in a rather passive manner. The tremendous backlog of massive working papers makes it impossible for delegates to really grasp what the Assembly is supposed to consider in a short two-week session. In addition, the more infrequent these sessions have become, the farther member States have gotten from the day-to-day activities of the organization. Commentators also point out that this structural change in ICAO has led to the "majority of States simply [not contributing] to the advancement of the international aviation."[33] In 2013, the 38th Assembly considered a proposal to hold its meetings once every two years. The Council reported that such a proposal would represent an additional cost of US$ 2.4 million over a period of six years. To no one's surprise, the Assembly quickly discarded the proposal.[34]

Initially, the Council, the organization's permanent political body, consisted of twenty-one States.[35] At present, however, the Council has thirty-

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[27] *Ibid*, art. 49.
[28] *Ibid*, art. 48.
[29] See ICAO, DOC 7300 Amendments 12/12/56, Protocol Relating to the Amendments of Articles 48 (a), 49 (e) and 61 of the Convention on International Civil Aviation, online: ICAO <www.icao.int/icaonet/arch/doc/7300/7300_1ed_amend_dec56.pdf>.
[30] See Michael Milde, "*Chicago Convention* - 50 Years Later: Are Major Amendments Necessary or 'Desirable'?" (1994) XIX: 1 Ann. Air & Sp. L. 401 at 429.
[31] See Peter Ateh-Afac Fossungu, A Critique of the Powers and Duties of the Assembly of the International Civil Aviation Organization, (LL.M. Thesis, McGill University, 1996) [unpublished] at 21.
[32] See Michael Milde, *International Air Law and ICAO* (2nd ed.) (The Hague: Eleven International Publishing, 2012) at 130 [*Milde, International Air Law and ICAO*].
[33] See Peter Ateh-Afac Fossungu, "999 University, Please Help the Third World (Africa) Help Itself: A Critique of Council Elections" (1999) 64:2 J. Air L. & Com.3 39.
[34] See ICAO, A38-WP/18 EX 13.
[35] Membership to the Council increased from 21 States to 30, to 33 and finally to 36 States.

six States.[36] As one environmental non-governmental organization puts it, the Council "has been carefully nurtured over the years to call all the shots."[37] The Council is headed by a President who is also a permanent employee of the organization.

The Council's functions may roughly be summarized as follows: i) execution of the mandates given by the Assembly; ii) management of the organization's finances; iii) appointment of the Secretary General; iv) adoption of standards and recommended practices (SARPs); and, v) reporting of infractions to the *Chicago Convention*.[38] The fact that extremely important functions such as the adoption of SARPs (ICAO's uncontested core activity) and the appointment of the Secretary General are vested in the Council is very indicative of its influential role. As Milde points out, it is the Council which is without a doubt "the real focus of the ICAO decision-making" process.[39] It is with reason then that some have ventured to call it a genuine "executive committee."[40]

The foregoing may explain why States continue to suggest that Council membership should be increased. In 2007, at the 36th Assembly, 15 Arab States presented a proposal to increase Council membership from 36 to 39 States.[41] These States argued that the "increasing importance of civil aviation in the Arab region, particularly in the Gulf area, [justified] a higher weight of participation in supervisory bodies in the field of international civil aviation."[42] They also contended that "many regions of the world are over-represented compared to the 22 Arab States, such as the Northern European States as well as Central and Latin America."[43] Three years later, in 2010, at the 37th Assembly, Saudi Arabia tabled a similar proposal.[44] At the time, the Assembly referred the matter to the Council for consideration. Although noting "the need and growing desire by many States to be represented on the Council", the Council observed that "increasing membership may not be the most appropriate means to address this matter."[45] The Council therefore did not endorse an increase of its membership to 39.[46] In 2013, the 38th Assembly followed the Council's recommendation and the proposal was abandoned.

Although both of these proposals ultimately failed, they echo a growing feeling within member States that in order to participate in the organization's

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[36] See Chicago Convention, *supra* note 1, art. 50.
[37] See *Transport & Environment, Global Deal or no Deal, supra* note 10.
[38] See *Chicago Convention*, *supra* note 1, art. 54.
[39] See Milde, International Law and ICAO, *supra* note 32 at 130.
[40] See I. H. Ph. Diederiks-Verschoor, *An Introduction to Ari Law* (8th ed.) (The Netherlands: Kluwer Law International, 2006) at 45.
[41] See ICAO, A36-WP/258 EX 86.
[42] *Ibid* at 3.
[43] *Ibid*.
[44] See ICAO, "Assembly 37th Session – Working Papers by numbers", online: ICAO <www.icao.int/cgi/a37.pl?wp;LE>.
[45] See ICAO, A38-WP/17 EX 12.
[46] *Ibid*.

activities one must be member of the Council. If not, their contributions to the organization become much less significant. Some States with significant aviation activity are currently not members to the Council. These include, amongst others, Indonesia, Thailand, Qatar, Turkey, Ireland, Luxembourg, Ethiopia, Taiwan, Finland, Philippines, Israel, and Colombia.[47]

Since 2013, Turkey has made public its intention to run for a Council seat at the 39th Assembly in 2016. This has prompted some States to table a new proposal to increase the Council membership to 39 States.[48] They are aware that Turkey stands a realistic chance to be elected by the Assembly. At the time of this writing, the Council is considering this proposal. At this stage, it is unclear whether the Council would recommend its endorsement to the 39th Assembly. It is however evident that some States feel threatened by the surge of emerging aviation powerhouses. These States do not want to lose their seat at the Council. It is unfortunate that, once again, the emphasis is on enlarging the Council membership, as opposed to encouraging member States participation.

The existing structure poses significant barriers to participation and engagement from member States, *a sine qua non* for addressing aviation and climate change issues. The more disengaged and the less informed the majority of member States are on this issue, the stronger their inclination to reject collaborative action and block global proposals. Participation is a key element in the development of a global MBM scheme to address GHG emissions from international aviation.

C. CONSTITUENCY

Most attendees to ICAO events are mostly delegates from civil aviation authorities and ministries of transport of member States. In fact, it is rare to find someone with a background other than aviation at an Assembly. Council composition is not much different. Permanent Representatives to the Council are either civil servants from civil aviation authorities or career diplomats attached to their ministries of foreign affairs. Likewise, with very few exceptions, most staff members of the ICAO Secretariat possess a technical aviation background. It is unlikely that a predominantly aviation-oriented constituency will weigh in heavily on environmental considerations. In this context, it should not be a surprise that the ICAO constituency has the tendency to examine climate change issues from an aviation perspective and not vice versa.

[47] According to ICAO statistics, these countries rank in the top 36 in terms of international aviation activity, albeit not Council members. See ICAO, "Civil Aviation: 2012 International RTK by State of Air Operator Certificate (AOC)", online: ICAO <www.icao.int/Meetings/a38/Documents/International%20Scheduled%20RTK%20(Annual%20Report).PDF>.
[48] See ICAO, C-WP/14358.

D. ICAO'S COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION (CAEP)

On 5 December 1983, the Council merged the Committee on Aircraft Noise (CAN) and the Committee on Aircraft Engine Emissions (CAEE) and thereby established the Committee on International Aviation Environmental Protection (CAEP); a body of interdisciplinary experts to formulate recommendations on issues involving technical, economic, social, and policy aspects of aviation and the environment.[49] CAEP is first and foremost a committee of the Council. The Council approves its meetings, terms of reference, agenda, and work program. The CAEP work program is carried out over a cycle of three years during which various steering and working groups meet regularly. At the end of the cycle a two-week meeting is convened in Montreal to prepare a final report with proposed recommendations for consideration and approval by the Council.

CAEP has been instrumental in ICAO's work on environmental issues. Its initial focus was geared toward standard setting on aircraft engine emissions, air quality, technical aspects, cost effectiveness, and vapor displacement from fuel tanks.[50] Later, just before its second meeting, the ICAO Council refined CAEP's terms of reference to specifically tackle issues relating to the control of aircraft noise and gaseous emissions from aircraft engines.[51] It was only after the conclusion of the 1992 *United Nations Conference on Environment and Development* that the 31st Assembly decided to entrust CAEP with a very broad mandate to expand its work plan to include climate change issues associated with aviation and to work closely with other organizations such as the UNFCCC and the IPCC.[52]

CAEP recommendations are adopted following a four-fold test that includes technical feasibility, environmental effectiveness, economic reasonableness, and the interdependencies of measures.[53] Under technical feasibility, CAEP seeks to ensure that a recommended environmental regulation is viable on from a technical perspective in order not to jeopardize aviation safety. This part of the test has been criticized as favoring technical conservatism where market forces – often summarized as the views of the industry – and not ICAO regulations determine what is technically feasible.[54]

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[49] See ICAO, C-WP/13520 at 1.1 & 1.2.
[50] See ICAO, CAEP/1-WP/97 at 4-1.
[51] See ICAO, CAEP/2-WP/1.
[52] At present, experts from the following States are members to CAEP: Argentina, Australia, Brazil, Canada, China, Egypt, France, Germany, India, Italia, Japan, Netherlands, Poland, Russian Federation, Singapore, Spain, Sweden, Switzerland, South Africa, Tunisia, Ukraine, United Kingdom, and the US. The following States serve as observers: Greece, Indonesia, New Zealand, Norway, Turkey, and United Arab Emirates.
See ICAO, "CAEP – Members and Observers", online: ICAO <http://www.icao.int/ENVIRONMENTAL-PROTECTION/Pages/CAEP.aspx>.
[53] ICAO, CAEP Terms of Reference, online: ICAO <http://www.icao.int/environmental-protection/Documents/CAEP/Images/CAEPToR.jpg>.
[54] See Elizabeth Duthie, "ICAO Regulation: Meeting Environmental Need?" (2001) 3:3/4 Air & Sp. Europe 27 [*Duthie*].

Under environmental effectiveness, CAEP seeks to ensure that the proposal will in fact produce concrete environmental benefits. In considering the economic reasonableness of recommendations, CAEP looks into the most cost-effective ways to carry them out. There have been concerns that economic reasonableness considerations now includes complex cost-benefit analyses that do not factor in the cost of internalizing externalities that aviation creates for the environment. In other words, the test does not consider the application of the polluter pays principle through the imposition of an environmental externality on airlines and consumers to be economically reasonable.[55]In connection with interdependencies of measures, CAEP assesses the link between the different components of environmental protection to avoid situations in which, for instance, a CO_2 reduction measure may generate an increase in NO_x emissions.[56] Yet perhaps the most serious criticism that CAEP's four-pronged test has received relates to the fact that it fails to recognize the cost to society of aviation's unsustainable development.[57]

Another criticism that CAEP has attracted relates to its imbalanced membership. At CAEP/1, the original roster included experts from thirteen ICAO member States, of which seven were European States.[58] Later, at CAEP/3 membership was increased to fifteen States with two new European additions.[59] At CAEP/5 held in 2001, nearly eighteen years after its formation, membership was expanded to eighteen ICAO member States in order to include experts from Singapore, Egypt, and South Africa.[60] For the first time, regional diversity became a relevant factor in determining CAEP's membership. An expert from China, the fastest growing domestic aviation market in the world, was only admitted in 2007 during the CAEP/7 cycle. Later, experts from Nigeria and Ukraine became members in 2009.[61] At present, CAEP is composed of experts from twenty-three ICAO member States with an additional 6 experts having observer status.[62] European countries account for roughly 41 per cent of CAEP's membership including observer States, whereas developing countries only account for 34.4 per cent.[63] While 6 industry trade

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[55] *Ibid* at 28.

[56] For instance, Lee & Sausen note that any initiative to reduce aviation's CO_2 emissions must also factor the effect that such measure may have on radiative forcing, for it may produce an increase of the latter. See D.S. Lee & R. Sausen, "New Directions: Assessing the Real Impact of CO_2 Emissions Trading by the Aviation Industry" (2000) 34 Atmospheric Environment 5337 at 5338.

[57] *Ibid*.

[58] CAEP's original members were Australia, Brazil, Canada, Denmark, France, Germany, Italy, Japan, Netherlands, Sweden, USSR, UK, and US, AAC, IATA, and ICCAIA joined as observers. See ICAO CAEP/1-WP/97.

[59] Although Denmark dropped out from CAEP at its third meeting, Poland, Spain, and Switzerland joined. The Council also decided to add Norway as an observer State. This produced a net get gain for Europe of two additional member States and one observer State. At the time, no other country from any other of ICAO's geographical regions became a CAEP member. See ICAO, CAEP/3.

[60] See ICAO CAEP/5-WP/86.

[61] See ICAO CAEP/8-WP/80 at 1.

[62] See ICAO, CAEP Members and Observers, online: ICAO <www.icao.int/ENVIRONMENTAL-PROTECTION/Pages/CAEP.aspx>.

[63] *Ibid*. On the other hand, experts from developed States account for 65.5 per cent of CAEP's

associations provide experts to CAEP as observers, only one environmental NGO is allowed to participate.[64]

CAEP's notorious imbalance in favor of a heavily-represented European constituency may be attributed to the fact that at the time of its origin the predominant issue in its work program referred to aircraft noise – a subject about which the European countries were profoundly concerned. Progressive European liberalization policies prompted rapid expansion of air transport, causing severe issues of airport congestion. Countless local areas neighboring airport premises were affected, provoking frequent public outcry. At the time, aircraft noise became the major aviation environmental issue in Europe. It was therefore the European push which forced the Council to include noise-related topics in CAEP's agenda. However, in regions where aircraft noise was not the subject of much attention, the environmental issues surrounding aviation seemed mostly remote. Countries from these regions did not see an acute need to participate in CAEP neither did ICAO encourage them to join. In ICAO's defense, it is also true that these countries did almost nothing to engage in CAEP's discussions. It is not surprising that, during the early days of CAEP, Brazil – an aircraft manufacturing country – was the only developing country to take part in its proceedings. Japan was the only representative from Asia, and there were no members from Africa. This historical imbalance also helps to explain why today aviation's environmental problems, including climate change, are to some extent perceived as an European phenomenon only, to which developing States try somewhat to distance themselves to the greatest extent possible.

CAEP will continue to play a leading role in the formulation of ICAO standards, guidance material, as well as in providing policy advice on delicate issues. CAEP's work will be instrumental in the design of the global MBM scheme for international civil aviation. In fact, in November 2013, the Council tasked CAEP to develop sustainability criteria for offsets or carbon credits eligible for any such scheme.[65] The Council also entrusted CAEP with the mandate to work on monitoring, reporting and verification (MRV) standards.[66] Because of the significant role CAEP is likely to have in the development of these standards, as well as other tasks that the Council may assign later, the imbalance in CAEP's membership and the participation of its experts should be revisited.

membership.

[64] *Ibid.*

[65] See ICAO, C-DEC 200/4; ICAO, MIN-200/4; ICAO, Committee on Aviation Environmental Protection – CAEP – Informal Briefing to the Council (31 January 2014) (on file with the author).

[66] *Ibid.*

E. INDUSTRY PARTICIPATION

Nobody can question the value of industry involvement in an international organization's rule-making process.[67] At ICAO, industry stakeholders play a significant role. Yet, outsiders have already pointed out that the organization echoes the interests of industry stakeholders such as air carriers far too strongly.[68] Some years ago, this was subject to noteworthy scrutiny particularly in the case of ICAO's Legal Committee. In June 2009, the Working Group on Governance and Policy (WGOG) recommended an amendment to the committee's rules of procedure with regard to the participation of (industry) observers.[69] The WGOG report argued that, in pursuit of consistency with the procedures of other United Nations specialized agencies, a clear differentiation was needed between member States and observers, since "[observers] have neither the same responsibilities nor the same duties [as member States]."[70] Although the Legal Committee did not agree with WGOG's recommendation to change its rules of procedure to restrict participation of industry stakeholders, the proposal serves to illustrate the discontent of some States.[71]

Industry observers bring invaluable technical expertise and advice to ICAO. Their participation helps to ensure that rules are drafted in a manner that recognizes the practicalities of the market and the realities of a sector that is technical by definition. International rulemaking should not adopt the form of a unilateral set of commands which fail to take into account the views of those who are the subject of intended regulations. As Fuller notes, this should be an interactive process where all parties involved actively participate as opposed to "only a unidirectional exercise of authority."[72] It is precisely this interaction between lawgivers – ICAO – as the regulating agency – and law subjects – industry stakeholders as their ultimate recipients – that "gives meaning to this law [-making]" process.[73]

Having said this, it is also uncontested that this interaction cannot be to the detriment of the participation of member States, ICAO being first and foremost an organization of sovereign States. Industry's overwhelming involvement in CAEP, for instance, exemplifies what ought not to be the standard. Should this trend continue, it will only perpetuate a practice that thus far has only disengaged State participation.

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[67] See Penelope Canan & Nancy Reichman, "Lessons Learned" in Donald Kaniaru (ed.) *The Montreal Protocol: Celebrating 20 Years of Environmental Progress* (London: Cameron May Ltd, 2007) at 114 (highlighting that strong industry involvement was important for the successful adoption of the Montreal Protocol on Ozone Depleting Substance).
[68] See Richard Janda, "Passing the Torch: Why ICAO Should Leave Economic Regulation of International Air Transport to the WTO" 21:1 Ann. Air & Sp. (1995) 409 at 413.
[69] See ICAO, C-WP/13399.
[70] *Ibid*.
[71] See ICAO, Doc 9926-LC/194, Legal Committee 34th Session, 9-17 September 2009 at 3.1.
[72] Lon L. Fuller, *The Morality of Law* (New Haven: Yale University Press, 1964) [*Fuller*] at 223.
[73] *Ibid* at 195.

Although unsuccessful on this occasion, the WGOG proposal also illustrates the growing discontent among some States with role of industry stakeholders at ICAO. Arguably, there is a perception that industry has become either too powerful or too successful in its lobbying tactics, making it intricate for some States to dissect what their legitimate concerns are from those which are purely self-interested dogmatic statements with no sound foundation. Complex issues such as aviation and climate change may only accentuate this imbalance where the asymmetry of information gives a significant advantage to industry. Perhaps there is the need to mark the boundaries within which industry stakeholders may participate at ICAO, but restricting industry participation will not – by itself – resolve the dilemma, for it will only help to isolate a leading actor whose unquestionable contribution is desperately required. Without industry input, ICAO will quickly lose touch with the practical needs and realities of the market on a number of regulatory issues including climate change.

F. NGO PARTICIPATION

It is interesting to compare the role of industry stakeholders with that of organizations representing civil society at large. Arguably, industry enjoys greater access to the ICAO process than environmental NGOs. It is not unusual that industry is invited to participate in ICAO's discussion whereas NGOs are not. For instance, when the 38th Assembly agreed to develop a global MBM for international aviation, it tasked the Council to "finalize work on the technical aspects … of the possible options for a global MBM scheme … taking into account … the proposal of the aviation industry."[74] There is no reference to proposals from those sectors representing civil society.

NGOs bring a completely different perspective on climate change issues which may be worth considering. Perhaps this surreptitious bias has been due to the fact that, historically, the ties between ICAO and some industry trade organizations have been very strong. For instance, one of IATA's own objectives is precisely to "cooperate with [ICAO]."[75] The fact that IATA is headquartered in Montreal is because of ICAO. The Airport Council International (ACI) – the international trade association of the world's airports – has also relocated its headquarters to Montreal. The industry-ICAO symbiosis may also be explained from the perspective that as a specialized institution, ICAO deals with technical issues on which input from industry stakeholder is usually extremely important.

Yet, this should not be translated into a perpetual advantage. Climate change is a complex issue characterized by different interests. It should be in the best interest of the whole process that all parties, including those

[74] See ICAO, A38-18, *Consolidated Statement of Continuing ICAO Policies and Practices related to Environmental Protection – Climate Change*, Preamble, paragraph 19 (a) [*ICAO, A38-18*].
[75] See IATA, *Articles of Association*, art. 4 (3). online: IATA <www.iata.org/about/Documents/articles-of-association.pdf>.

representing civil society at large, are given a fair opportunity to participate. Restricting access to these organizations or not providing them with a level playing field may reflect an unintentional bias which may be detrimental to the rule-making process.

III. ICAO AND CLIMATE CHANGE

ICAO has an impressive track record when it comes to the production of guidance materials directly or indirectly relating to aviation and climate change issues.[76] Yet, the main criticism against the work of the organization is that GHG emissions from international aviation continue to grow in spite all its efforts. To date, there is no system in place to reduce or limit these emissions. In addition to describing the evolving challenges that ICAO has faced, this section focuses on key elements that are expected to play a significant role in the organization's future work on GHG emissions.

A. HISTORICAL BACKGROUND

In 1998, less than a year after the adoption of the *Kyoto Protocol*, the 32nd Assembly tasked the Council to explore "policy options to limit or reduce greenhouse gas emissions from civil aviation, taking into account the IPCC special report and the requirements of the *Kyoto Protocol*."[77] CAEP then established a working group to look into policy options such as charges, fuel taxes, offsetting schemes and emissions trading.[78] Three years later, the 33rd Assembly noted CAEP's recommendation that an "open emissions-trading system"[79] was a "cost effective measure to limit or reduce" GHG emissions from international civil aviation.[80] Due to the lack of political will, the

[76] See ICAO Doc. 9949, Scoping Study of Issues Related to 'Linking' Open Emissions Trading Systems Involving International Aviation (1st ed.) (2011); ICAO Doc. 9931 AN/476, Continuous Descent Operations (CDO) Manual (1st ed.) (2010); ICAO Doc. 9574 AN/934, Manual on a 300 m (1000 ft) Vertical Separation Minimum between Fl 290 and FL 410 Inclusive (3rd ed.) (2012); ICAO Doc. 9885, Guidance on the Use of Emissions Trading for Aviation (1st ed.) (2008); ICAO Doc. 9977 AN/489, Manual on Civil Aviation Jet Fuel Supply (1st ed.) (2012); ICAO Doc. 9988, Guidance on the Development of States' Action Plans on CO_2 Emissions Reductions Activities (1st ed.) (2013); ICAO Doc. 9501 AN/929, Environmental Technical Manual (1st ed.) (2010); ICAO Doc. 10018, Report of the Assessment of Market-based Measures (1st ed.) (2013) [ICAO, Global MBM Assessment]; ICAO Doc. 9997 AN/498, Performance-based Navigation (PBN) Operational Approval Manual (1st ed.) (2013); ICAO Doc. 9993 AN/495, Continuous Climb Operations (CCO) Manual (1st ed.) (2013); ICAO Doc. 9992 AN/494, Manual on the Use of Performance-based Navigation (PBN) in Airspace Design (1st ed.) (2013); ICAO Circular 134-AN/94, Control of Aircraft Engine Emission (1st ed.) (1977); ICAO Circular 334-AN/184, Guidelines for the Implementation of Lateral Separation Minima; ICAO Circular 303 AN/176, Operational Opportunities to Minimize Fuel Use and Reduce Emissions (2003).

[77] See ICAO, A32-8, *Consolidated Statement of Continuing ICAO Policies and Practices related to Environmental Protection*, Appendix F, paragraph 4, [*ICAO, A32-8*].

[78] See ICAO, MBM Activities Chronology, [unpublished] (on file with the author) [*ICAO, MBM Chronology*].

[79] ICAO defines an open emissions trading as the "system where allowances can be traded in and outside the given scheme or sector." ICAO Doc. 9885, *Guidance on the Use of Emissions Trading for Aviation*, at xiv. In other words, the aviation sector would be permitted to purchase allowances from other industry sectors. *Ibid.*

[80] See ICAO, A33-7, *Consolidated Statement Of Continuing ICAO Policies and Practices related to Environmental Protection* [*ICAO, A33-7*], Appendix I, Preamble.

Assembly did not adopt such a system. Instead, the Assembly encouraged States to address the aviation sector's carbon footprint through the adoption of voluntary measures.[81] It also tasked the Council to "develop guidance for States on the application of [MBMs]."[82] For the next 3 years, CAEP conducted a number of studies on several subjects, including the impact of environmental levies on developing countries, emissions trading, and the possibility of implementing voluntary agreements.[83] In 2004, the 35th Assembly, "[endorsed] the further development of an open emissions trading system."[84] It also tasked the Council to continue carrying out feasibility studies.[85] At that time, the fact that the Assembly was unable to implement concrete measures to address the sector's GHG emissions, but rather continue in a "studying mode" *sine die* was perceived as a *de facto* rejection of emissions trading.[86] CAEP nevertheless developed guidance on emissions trading. ICAO also formed a group of legal experts to examine the legality of emission-related levies and GHG charges.[87]

The next session of the Assembly took place in September 2007,[88] more than two years after of the European Union announced its intention to rope foreign aircraft operators into its emissions trading scheme (EU ETS). This announcement ignited fierce international opposition never seen in the context of international civil aviation. To no one's surprise, the deliberations that took place at the 36th Assembly were clearly aimed at sending a strong message to Europe that the international community will not tolerate the inclusion of foreign aircraft operators in such a unilateral regime. In fact, the Assembly stated categorically that a State should not include foreign aircraft operators into its emissions trading scheme unless it has previously sought and obtained consent from the home State(s) of the foreign aircraft operators.[89] It is an understatement to say that the issue of mutual consent dominated the Assembly's discussions on climate change. Moreover, in light of the significant disagreements and the failure to adopt a system to regulate GHG emissions, the Assembly tasked the Council to establish a High-Level Group on International Aviation and Climate Change (GIACC) to provide policy recommendations on what the Assembly described as "an aggressive Program of Action."[90]

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[81] *Ibid*, Appendix I, paragraph 2 (1).
[82] *Ibid*, Appendix I, paragraph 1.
[83] See ICAO, MBM Chronology, *supra* note 78.
[84] See ICAO, A35-5, *Consolidated Statement of Continuing ICAO Policies and Practices related to Environmental Protection*, Appendix I, paragraph 4 (c) (1) [*ICAO, A35-5*].
[85] *Ibid*, Appendix I, paragraph 4 (c) (2).
[86] See Transport & Environment, Global Deal or no Deal, *supra* note 10 (suggesting that the 35th Assembly turned down emissions trading as a policy option).
[87] See ICAO, MBM Chronology, *supra* note 78. See also ICAO Doc. 9885, *Guidance on the Use of Emissions Trading for Aviation* (1st ed.) (2008); ICAO, Council Special Group on Legal Aspects of Emissions Charges, Montreal, 6-9 September 2005 [*ICAO, CSG-LAEC/1*].
[88] See ICAO, Assembly 36th Session, online: ICAO <www.icao.int/Meetings/AMC/36th/Pages/default.aspx>.
[89] See ICAO, A36-22 Consolidated Statement of Continuing ICAO Policies and Practices related to Environmental Protection, Appendix L, paragraph 1 (b) (1) [ICAO, A36-22].
[90] *Ibid*, Appendix K, paragraph 2 (a).

After numerous meetings, GIACC provided three key recommendations, namely, the need to develop: i) a CO_2 aircraft emission standard; ii) a framework for MBMs; and, iii) State action plans.[91] In October 2009, ICAO convened a High-Level meeting on International Aviation and Climate Change (HLM-ENV/09).[92] Building upon GIACC's work, HLM-ENV/09 adopted a non-binding declaration suggesting that as part of ICAO's action plan on climate change, States should embrace an aspirational, non-attributable goal "to achieve a global annual average fuel efficiency improvement of 2 per cent over the medium term until 2020."[93] HLM-ENV/09 also recommended that a framework for MBMs should be adopted and that States should develop action plans.[94] The following year, in 2010, signifying progress in three specific areas, the 37th Assembly instructed the Council to: i) develop a CO_2 standard for aircraft emissions;[95] ii) develop a framework for MBMs;[96] and iii) explore the feasibility of a global scheme for MBMs.[97] At the time, the possibility of developing a global scheme seemed extremely remote. Three years later, however, the 38th Assembly finally agreed to develop a global MBM scheme for international aviation.[98]

B. THE LONG ROAD TO THE CO_2 STANDARD

The process leading to the development of the CO_2 standard for aviation emissions has involved some highly controversial environmental policy debates at ICAO. The case is illustrative of the challenges that an international organization such as ICAO faces when industry is not necessarily on board or convinced that regulation is warranted. As will be seen below, it is also symptomatic of the limitations embedded in the regulation.

In simple words, a CO_2 standard refers to the minimum certification requirements applicable to aircraft engine emissions. Based on type certification, these standards apply solely to aircraft engines.[99] To date, some countries have established minimum fuel consumption standards for road vehicles. However, there are no fuel efficiency standards in existence in any country for purposes of aircraft certification. As a result of successful industry lobbying efforts, market forces – non-regulatory intervention – helped determine fuel efficiency and CO_2 emissions.[100] For a long time, aviation

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[91] See ICAO, *Group on International Aviation and Climate Change (GIACC) Report* (1 June 2009) at 5-6.
[92] See ICAO Doc. 9929, *Report of the High-Level Meeting on International Aviation and Climate Change*, Montreal 7-9 October 2009 [*HLM-ENV/09 Report*].
[93] *Ibid* at 20, paragraph 2.
[94] *Ibid* at 20, paragraphs 5 and 7.
[95] See ICAO, A37-19, *Consolidated Statement of Continuing ICAO Policies and Practices related to Environmental Protection – Climate Change*, paragraph 24 (e) [*ICAO, A37-19*].
[96] *Ibid*, paragraph 13.
[97] *Ibid*, paragraph 18.
[98] *Ibid*, paragraph 18.
[99] See Duthie, *supra* note 54 at 27.
[100] See Bert Metz et al., *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report* (Cambridge: Cambridge University Press, 2007) [IPCC/4] at 353.

industry advocates, with consistent support from free-market champions, have strongly opposed emissions standards on the grounds that market forces have already ensured aircraft fuel efficiency. Aircraft and engine manufacturers have sufficient incentives to produce the most fuel-efficient aircraft. This is precisely what their customers (mostly commercial airlines) demand. With ever-increasing fuel prices and with fuel being the major element in the cost structure of most airlines, reducing fuel consumption is not just an environmental crusade for airlines but also a significant part of their everyday survival mode. Should inefficiencies arise, free market advocates argue that the market's invisible hand will correct them. They point to the US capacity cutbacks that were experienced in 2008 as a result of the fuel spike, which translated into lower fuel consumption levels than those of the year 2000.[101] Free market advocates claim that since CO_2 emissions are directly proportional to the amount of fuel consumed, there is no need to develop such a standard.[102] Adhering strictly to this rationale, CAEP/5 completely ruled out the possibility of developing a CO_2 standard in 2001.[103] While this line of reasoning may be true, it also fails to recognize that even if market forces may drive fuel efficiency standards to some extent, this only applies to the acquisition of new equipment. Market forces bear almost no impact at all on the retirement or upgrading of existing, aged fleet – a severe problem in certain regions.[104]

ICAO's longstanding reluctance to adopt a CO_2 standard gradually came to an end when the GIACC recommended the development of the standard in its final report. However, the recommendation was limited in scope in that it was applicable exclusively to new aircraft types.[105] On 30 June 2009, the Council accepted the GIACC's recommendation and directed the Secretariat to work through CAEP on establishing such a standard.[106] Later, in October 2009, ICAO's HLM-ENV recommended that the organization should "seek to develop a global CO_2 standard for new aircraft types",[107] thereby implicitly reaffirming the Council's earlier decision. At this stage, pressure was mounting. Aircraft manufacturers could no longer resist and it was evident that the standard will have to be developed. A year later, as mentioned above, the 37th Assembly formally instructed the Council to develop the CO_2 standard.

According to CAEP's reports, ICAO is pursuing three major objectives in establishing a CO_2 standard. Firstly, the standard seeks to provide additional incentives to improve aircraft fuel efficiency performance.[108] Secondly, the standard will measure such performance across different aircraft types.[109] And

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[101] See Maryalice Locke, "Aviation & the Environment: Issues for Considering Global Aviation Emissions" ICAO Workshop on Aviation Carbon Markets, 19 June 2008, at 5, online: ICAO <www.icao.int/2008wacm/Docs/5_Locke.pdf>.
[102] See ICAO, CAEP/5-WP/86 at 1-2.
[103] *Ibid*.
[104] See Duthie, *supra* note 54 at 27.
[105] See ICAO, C-WP/13385.
[106] See ICAO, C-DEC 187/14.
[107] See HLM-ENV/09 Report, *supra* note 92 at 21.
[108] See ICAO, CAEP/8, at 2-18.
[109] *Ibid*.

finally, ICAO intends to minimize counterproductive incentives and adverse interdependency effects.[110] In early 2013, CAEP finally agreed on a common metric for the standard.[111] It is expected that Council will be in a position to adopt the standard in or about 2016.

Critics would highlight a number of shortcomings in the CO_2 standard. In all likelihood, the standard will only be applicable to new aircraft types – that is to say to the new Airbus XXX,[112] not for a new unit of its A-380 model. Likewise, it will have almost no effect on aircraft in service or those that are already on the production line. In practical terms, from an environmental perspective, the effect of the CO_2 standard will be limited. In fact, the CO_2 standard is nothing more than what industry is already doing or willing to concede. In this respect and as will be discussed below, the case of the CO_2 standard is very similar to that of the global scheme for MBMs.

Yet, one must also to bear in mind the enormous opposition that this issue has attracted. For almost 10 years, industry and some States were reluctant to even entertain the idea of a CO_2 standard – let alone its metric or scope of applicability. The fact that ICAO is now on track to adopt such a standard should be seen as a major accomplishment. Should there be the necessary political will, ICAO and its member States could expand the scope of the CO_2 standard to aircraft in production, and perhaps one day, to aircraft in service.

C. STATE ACTION PLANS

In 2009, GIACC suggested that ICAO "should encourage States to develop action plans."[113] In an apparent follow up effort on this suggestion in 2010, the 37th Assembly "[encouraged] States to submit their action plans [by June 2012] outlining their respective policies and actions, and annual reporting on international aviation CO_2 emissions to ICAO."[114] As a tool for the achievement of ICAO's aspirational goals, action plans essentially seek to induce States to monitor their aviation emissions and, as well, to identify measures to address their carbon footprint.[115] To this end, the Assembly suggested that States should establish a baseline or counterfactual basis to assess their progress.[116] In 2013, at the 38th Assembly, ICAO reported that 61

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[110] *Ibid*.
[111] See ICAO, "ICAO Environmental Protection Committee Delivers Progress on Aircraft CO_2 and Noise Standards", online: ICAO <www.icao.int/Newsroom/Pages/ICAO-environmental-protection-committee-delivers-progress-on-new-aircraft-CO2-and-noise-standards.aspx>.
[112] Here the letters "XXX" refers to a new aircraft type which has yet to be launched.
[113] See GIACC Report, supra note 91 at 4.
[114] ICAO, A37-19, *supra* note 95, paragraph 9.
[115] ICAO, Climate Change: Action Plans, online: ICAO <www.icao.int/environmental-protection/Pages/action-plan.aspx>.
[116] See ICAO, Guidance Material for the Development of States' Action Plans, online: ICAO <www.icao.int/environmental-protection/Documents/GuidanceMaterial_DevelopmentActionPlans.pdf>.

States had submitted action plans.[117] As of the date of this writing, 24 States had made their action plans public.[118] Having reached out to 155 member States, ICAO has identified 114 focal points in those States.[119]The 38th Assembly continued to encourage States to submit action plans but this time once every three years.[120]

Although it is not yet possible to determine actual GHG emission reductions as a result of the actions plans, this has arguably proved to be one of ICAO's major achievements in addressing climate change issues. It is true that the development of these action plans is still undergoing a trail-and-error phase, but it has been a gigantic step toward instilling among member States the culture of addressing GHG emissions from international aviation. Even if one remains skeptical about the content of these action actions (e.g. accuracy of data, over-emphasis on technological and operational measures, or in some cases, lack of evidence that concrete measures have been put in place to limit or reduce GHG emissions), the sole fact that States discuss measures and options to address climate change issues at large is a major accomplishment. Here, one must bear in mind that the predominant transport-oriented culture within the vast majority of ICAO member States is not necessarily conducive to tackling climate change issues.

Presumably, State action plans have been an invaluable tool to engage a broader audience. The fact that the ICAO Secretariat has attempted to link technical assistance for some States to the preparation of these action plans is a step in the right direction. Obviously, here the availability of additional funds and resources will be of paramount importance. For the future, ICAO should consider whether the submission of these action plans should be made mandatory, possibly through the adoption of a special ICAO standard. The action plans could also form part of the ICAO audit process. At present, ICAO only audits States on the basis of their level of compliance with aviation safety and security standards.[121]

D. ASPIRATIONAL GOALS

In 2010, moving beyond HL-ENV/09, the 37th Assembly adopted three aspirational goals. First, the sector should strive to achieve "a global annual average fuel efficiency improvement of 2 per cent."[122] Second, this goal should

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[117] See ICAO, A38-WP/30.
[118] ICAO, Action Plans, online: ICAO <www.icao.int/environmental-protection/Pages/action-plan.aspx>.
[119] See ICAO, Action Plans, Facts & Figures, online: ICAO < www.icao.int/environmental-protection/Pages/ClimateChange_ActionPlan_FactsFigures.aspx>.
[120] See ICAO, A38-18, *supra* note 74, paragraphs 11 and 12.
[121] At present, the ICAO safety audits only include airworthiness protocols related noise certification standards of Annex 16 (Environmental Protection). See generally, ICAO Doc. 9735 AN/960, *Universal Safety Oversight Audit Program Continuous Monitoring Manual* (3rd ed., 2011); ICAO Doc. 9859 AN/474, *Safety Management Manual (SMM)* (3rd ed., 2013); ICAO, *Universal Security Audit Program* (2nd ed., 2010).
[122] See ICAO, A37-19, *supra* note 95, paragraph 4.

also be maintained from 2020 to 2050.[123] And finally, from 2020 onwards, the Assembly also decided to cap the growth of aviation's emissions at 2020 levels.[124] This is what industry refers as carbon neutral growth (CNG).[125] In working toward CNG, the Assembly called upon States to take into account a number of factors, such as "the special circumstances and respective capabilities [SCRC] of developing countries, the maturity of aviation markets, [and the fact] that some States may take more ambitious actions prior to 2020, which may offset an increase in emissions from the growth of air transport in developing states."[126]

Although no State objected to the fuel efficiency goals, 51 States filed reservations against the CNG goal. For 44 European States and the US, such a goal was not stringent enough.[127] Instead of CNG, European States had proposed a 10 per cent reduction in emissions by 2020 but with a 2005 baseline – a significantly more aggressive goal.[128] The US, along with Canada and Mexico, in turn, had proposed CNG from 2020 onwards with a 2005 baseline.[129] On the other hand, 6 States claimed that it was unfair for developing countries to commit to such goals.[130] According to them, only developed States should take the lead and implement CNG.[131] Given the divergence in views and how far apart the positions were, it is in fact remarkable that the Assembly was able to adopt such goals – albeit subject to numerous reservations. It was interesting though that the "middle ground" lied exactly at the same place where industry struck. To a large extent, these goals are strongly industry-oriented.[132]

These goals are non-binding, neither are they assigned or "attributed" to States or aircraft operators. All States are encouraged to collectively strive to achieve them. This was done to delink ICAO's goals from the notion of binding emissions reduction commitments applicable under the UNFCCC/Kyoto regime. For some developing States, the fact that these goals were "global" and did not set different obligations for developed and developing countries made them unacceptable. This explains why a number of developing countries filed reservations. For other developed States, the suggestion by the Assembly that some States may take action to offset the growth of emissions in developing countries was perceived as a camouflaged incarnation of the CBDR principle at ICAO. The US, Canada and Australia expressed strong reservations on this issue.[133] It would seem that, for both developing and developed States, these

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[123] Ibid.
[124] *Ibid*, paragraph 6.
[125] See ICAO, A37-WP/217 EX/39.
[126] See ICAO, A37-19, *supra* note 95, paragraph 6 (a), (c) and (d).
[127] See ICAO, Reservations to A37-19, online: ICAO <www.icao.int/Meetings/AMC/Assembly37/Documents/ReservationsResolutions/10_reservations_en.pdf> [*ICAO, Reservations to A37-19*].
[128] See ICAO, A37-WP/108 EX/26.
[129] See ICAO, A37-WP/186 EX/35.
[130] See ICAO, Reservations to A37-19, *supra* note 95.
[131] See ICAO, A37-WP/181 EX/32.
[132] See ICAO, A37-WP/217 EX/39.
[133] See ICAO, Reservations to A37-19, *supra* note 127.

discussions at ICAO bear implications for the broader climate change negotiations at the UNFCCC.[134]

ICAO's goals have been the subject of severe criticism.[135] Some commentators doubt that they will in fact lead to meaningful emission reductions.[136] ICAO itself admits that fuel efficiency improvement by itself will be insufficient.[137] In spite of this, one must also recognize that the goals have been instrumental in setting a reference point, which also serves as a basis for ICAO's work on climate change. This is important in determining whether the implementation of technical and operational measures will be sufficient, or whether MBMs ought to be developed. Even if these goals prove later to be insufficient, it would be almost impossible to make any progress without them. One could argue that, in light of the current growth trends of the air transport sector, ICAO should consider more aggressive goals. To date, however, it is not clear that there is sufficient political will to do so. In this context, it is very likely that these goals will remain untouched and that they will continue to be non-binding.

IV. A FRAMEWORK FOR MBMS

Ever since Europe announced its intention to include foreign aircraft operators into its ETS, one of the industry's greatest concerns has been the potential emergence of a patchwork of multiple regimes attempting to address the sector's GHG emissions.[138] In the words of Giovanni Bisignani, IATA's former Director General, "a global industry [requires] a global solution."[139] The industry's preference for a coordinated approach was self-evident. At this juncture, however, the possibility of adopting a single global scheme seemed a far-fetched proposition.[140] Cognizant of the industry's concerns, both GIACC and HLM-ENV/09 recommended that a framework for MBMs should be pursued.[141] The framework was perceived as a tool to induce coordination amongst different regimes, avoid market distortions, and shield the industry from additional financial burdens and redundant compliance.[142] At this stage,

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[134] See ICAO C-MIN 197/6 at 8 (Statement of India) (suggesting that climate change issues involving international aviation cannot be disassociated from UNFCCC developments).
[135] See Chris Lyle, "Mitigating International Air Transport Emissions through a Global Measure: Time for Some Lateral Thinking" (2014) (describing ICAO's global aspirational goals as "tenuous"), online: <www.greenaironline.com/news.php?viewStory=1820> [Lyle, Mitigating International Air Transport Emissions through a Global Measure].
[136] See Green Air Online, "Climate Researchers Find even Carbon-Neutral Growth from 2020 will not be enough to Stave off Climate Impacts", online: <www.greenaironline.com/news.php?viewStory=1761>.
[137] See ICAO, A37-19, *supra* note 95, Preamble.
[138] See Giovanni Bisignani, *Words of Change* (Geneva: IATA Corporate Communications, 2011) at 52 [*Bisignani, Words of Change*].
[139] *Ibid*.
[140] In fact, "GIACC acknowledged that the implementation of a unique global sectoral system would face major challenges, particularly in the short and medium-term." GIACC Report, *supra* note 91 at 16.
[141] See GIAAC Report, *supra* note 91 at 5-6; HLM-ENV/09 Report, *supra* note 92 at 20, paragraph 5.
[142] *Ibid*, GIAAC Report at 16.

there was not much information as to what the framework should be, neither was there any indication as to whether it should be adopted through a binding or non-binding instrument.

In 2010, the 37th Assembly tasked the Council "to develop a framework for [MBMs]."[143] Unlike many other provisions of the 2010 ICAO climate change resolution, this task did not receive a single reservation.[144] Arguably, States saw in the framework a tool to avoid uncoordinated approaches and, for some, an instrument to send a strong political message to Europe in connection with its decision to include foreign aircraft operators in its ETS.[145]

After the Assembly session, much of the work on the framework remained dormant for more than a year following the Council's declaration of a one-year cooling-off period.[146] ICAO resumed discussions on the framework in 2012. At this time, all non-EU States joined in the effort to stop the application of the EU ETS. In this context, it seemed reasonable to push for the development of the framework. At the invitation of the US, a group of States opposing the EU ETS met in Washington DC on 31 July and 1 August 2012 to discuss international aviation emissions.[147] These States concluded that ICAO's work on the framework should be prioritized.[148] Other political factors also explain the preference for a framework as opposed to a global scheme. For instance, the US presidential elections were scheduled for November 2012. Seeking re-election, and given tremendous difficulties encountered with the US Congress on other domestic issues, the Obama administration was very concerned about any potential spill-over effects that could be triggered if it expressed support for the concept of a global scheme.

The framework must be clearly distinguished from a global MBM scheme.[149] In essence, it is only a set of common, non-binding principles[150] aimed at guiding those States or group of States that voluntarily decide to implement an MBM to the extent that such a measure is applicable to foreign aircraft operators.[151] The framework does not seek to impose on States the obligation to adopt MBMs. There have been different views of what the purpose of the framework should be. For instance, the US suggested that the framework should be a "safety zone" that seeks to provide guidance to those

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143 See ICAO, A37-19, *supra* note 95, paragraph 13.
144 See ICAO, Reservations to A37-19, *supra* note 127.
145 See ICAO, HGCC/2-WP/9.
146 See ICAO, C-DEC 192/6 at 2.
147 See Meeting on International Aviation Emissions, Chair's Summary, 31 July – 1 August 2012, Washington D.C. (on file with the author) [*Washington Meeting*].
148 *Ibid* at 2.
149 See ICAO, C-WP/13861 at 3-4.
150 Although States did discuss different instruments (e.g. convention, Assembly resolutions, standard), they have always assumed that the framework will be adopted through an Assembly resolution. See ICAO, HGCC/2-WP/6.
151 See ICAO, C-WP/13861 at 3-4. See also ICAO, HGCC/3-WP/4 at 3 (noting that the framework (should be a set of guiding principles that seek to guide States in the implementation of domestic and regional MBMs, when these measures are applied to foreign aircraft operators").

States or group of States wishing to implement MBMs.[152] As another State brilliantly noted, the "safety zone" approach seeks to act as a "dispute settlement mechanism to resolve controversies amongst States. It seeks to set out the conditions of [the framework's] applicability and scope. Rather than enabling action to reduce GHG emissions from international aviation, this view is much more concerned with restricting the reach and the implementation of existing MBMs."[153] For others, the framework's main purpose is to "drive commonality and harmonization in order to avoid duplicative measures [and constitute] the building blocks for a future global scheme."[154] The Secretariat also suggested that the framework should "contribute to the achievement of [ICAO's global aspirational goals]".[155]

Although the Secretariat highlighted other areas where policy guidance was warranted,[156] States focused their discussions on the most controversial issue associated with the framework: the so-called geographical scope. In other words, States focused on whether a State implementing an MBM could include foreign aircraft operators, and if so, under what conditions and to what extent.[157] Depending on the approach adopted, the geographical scope of an MBM may provide the basis for allegations of extraterritorial application to be made. Moreover, emissions were computed for the whole duration of the flight. It suffices to note here that the central argument against the EU ETS was precisely that the extraterritorial elements present in the scheme were impermissible.[158]

The ICAO Secretariat identified three different approaches to the geographical scope. First, an MBM could be applied only to flights departing from airports situated in the implementing States.[159] The scheme would cover emissions for the whole duration of the departing flight.[160] A second alternative would capture all emissions produced by aircraft registered in the implementing State.[161] Finally, a third approach would be to allow the implementing State to cover all flights, both incoming and outgoing, of both national and foreign aircraft operators but only for the portion of emissions generated within its national airspace.[162]

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[152] See ICAO, HGCC/2-WP 9.
[153] ICAO, HGCC/3-WP/4 at 3.
[154] ICAO, HGCC/3-WP/4 at 2.
[155] ICAO, HGCC/2-WP/4, Appendix A.
[156] These included issues such as whether the framework should incorporate provisions to accommodate the special needs of developing countries, whether the participants to an MBM scheme should be aircraft operators or the States themselves. See ICAO, HGCC/1-WP/5.
[157] As the State of registry, there is no question that the implementing State may apply an MBM to aircraft operators registered in such a State.
[158] Here it is worth to bear in mind that the 36th Assembly had said that an emissions trading scheme should only cover foreign aircraft operators to the extent that their respective home States consented to. See ICAO, A36-22, *supra* note 89, Appendix L.
[159] See ICAO, HGCC/1-WP/3 at 2. See also ICAO, HGCC/2-WP/4 at 2.
[160] See ICAO, HGCC/1-WP/3 at 2.
[161] *Ibid*.
[162] *Ibid*.

At the time when States discussed potential options for the geographical scope for the framework, Europe had already announced the temporary suspension of its ETS. As a result, Europe was aware that it needed to make some concessions and show some flexibility. This explains why Europe supported the option of departing flights.[163] Most other States, however, supported the notion of national airspace.[164] Although this option would seem to be better aligned with principles such as the exclusive sovereignty over a State's territory, it is less attractive from an environmental perspective since it leaves out emissions produced over the high seas.[165] Some States suggested that as long as the implementing State is in conformity with the framework, such a State would not require the consent of other States to include foreign aircraft operators.[166] Other States, such as India, strongly advocated the need for mutual consent in all cases.[167]

During discussions held prior to the 38th Assembly, States were not able to reach consensus on the geographical scope of the framework. It was evident, however, that a majority of States favored the national airspace approach.[168] In fact, the text of the resolution that had been prepared for the 38th Assembly incorporated the notion of national airspace.[169] Industry, however, lobbied extensively against this provision, alleging that it could be interpreted as a license or encouragement for States to implement their own schemes.[170] This was perceived as a real threat to the future of the global scheme.[171] In other words, this recognizes that States may adopt measures outside the auspices of ICAO.

The incorporation of the national airspace approach as part of the Assembly resolution was also perceived as legitimizing a scaled-down version of the EU ETS. Consequently, with strong industry intervention, the 38th Assembly opted to remain silent on the issue of the geographical scope.[172] In fact, the Assembly resolution does not even mention the word framework.[173] However, according to the resolution, if a State wishes to implement a "new" or "existing" MBM, the State should "engage in constructive bilateral and/or multilateral consultations and negotiations with other States to reach an agreement."[174]

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[163] See ICAO, HGCC/3-WP/7.
[164] See for instance, ICAO, HGCC/2-WP 9.
[165] See ICAO, HGCC/3-WP/4 at 4.
[166] See ICAO, HGCC/1-WP/2 at 1-2.
[167] See ICAO, HGCC/3-WP/5 at A-4.
[168] See Reuters, "Shuttle Diplomacy under way on Global Aviation Emissions Deal", online: Reuters <uk.reuters.com/article/2013/07/22/us-eu-aviation-emissions-idUKBRE96L0ZJ20130722>.
[169] See ICAO, A38-WP/34 EX/29.
[170] See Green Air Online, "Aviation Industry Calls for Global Agreement and Climate Change Leadership by Governments Ahead of ICAO Assembly, online: <www.greenaironline.com/news.php?viewStory=1745>.
[171] *Ibid*.
[172] See ICAO, A38-18, *supra* note 74.
[173] *Ibid*.
[174] See ICAO, A38-18, *supra* note 74 paragraph 16 (a).

For some States, the requirement of an agreement equates to mutual consent in practice. In other words, the implementing State cannot include foreign aircraft operators, unless the affected States provide their consent. This would even be applicable to emissions generated over the implementing State's national airspace. For other States, on the other hand, this requirement only serves as a suggestion that they should use their best efforts to consult the other States concerned and attempt to reach an agreement. However, failure to reach an agreement does not stop the implementation of the scheme. In any case, this provision does not override the principle of exclusive sovereignty over a State's territory. In other words, consent is not required to include into a State's MBM scheme emissions produced over the implementing Sate's national airspace by foreign aircraft operators.

The development of the framework has been a fascinating story in many ways. Firstly, it was conceived as a tool to correct the potential threat of uncoordinated approaches. Yet it also became its own worst foe as it was essentially abandoned in order not to encourage the surge of other schemes outside of the realm of ICAO. Secondly, for better or worse, the framework serves to demonstrate the enormous influence that the EU ETS has had on climate change discussions at ICAO.[175] From its initial conception to its actual abandonment by the 38th Assembly, the framework became more than a technical issue - a political battle which was seen by non-EU States as an appropriate avenue to demonize the EU ETS. For European States, however, this provided a means to legitimize the EU ETS. Thirdly, the framework is a classic example of a situation in which States get entangled into a political discussion with little or no legal or policy justification. From the get-go, it was self-evident that a non-binding framework will have no persuasive effect on the intended target. In other words, it is unrealistic to expect that European States would comply with the letter of a framework that would seem to contradict the very notion of the principle of exclusive sovereignty (e.g. the requirement to obtain the consent of other States over emissions produced within the airspace of the implementing State).

V. A GLOBAL SCHEME FOR MBMS

Pursuant to the task of exploring the feasibility of a global MBM scheme assigned to the Council at the 37th Assembly, the President of the Council formed an Ad Hoc Working Group on MBMs (AHWG) on 20 January 2012 during the 195th Session of the Air Transport Committee.[176] The purpose of the AHWG was to identify potential measures for a global MBM scheme for international aviation with the assistance of a group of experts.[177] After

[175] See contra ICAO, C-MIN 196/7 at 9 (Statement of Cuba) (stating that ICAO was working under the mandate given by the Assembly and not as a result of the external pressure exerted by the EU ETS).
[176] See ICAO, C-WP/13894, Appendix C. See also ICAO, C-WP/13799 at 2.
[177] See ICAO, HGCC/3-WP/4 at 2.

extensive work, the experts assisting the AHWG along with the Secretariat identified the following four potential measures for a global scheme: i) offsetting; ii) offsetting with a revenue generation mechanism; iii) emissions trading (cap & trade); and, iv) emissions trading (baseline & credit).[178]

Offsetting envisages a scheme where either States or aircraft operators (participants) are required to purchase emissions reduction units (ERUs) from other sectors.[179] The scheme's design involves the establishment of a set of criteria to determine which units will be eligible, as well as setting out a baseline.[180] Taking ICAO's CNG aspirational goal as an example, offsetting will mean that, in order to compensate for the growth in their emissions, participants will, as of 2021, be required to purchase Emission Credit Units (ECUs) taking into account their 2020 emissions levels (baseline).[181] This was the least complicated alternative and so it was not surprising that the airline industry would express its preference for this option.[182]

The second option, offsetting with a revenue generation mechanism, follows exactly the same principles the only difference being that it includes a revenue generating mechanism, either through the imposition of a transaction fee or through the establishment of a price for emissions.[183] The rationale for adding the revenue generation mechanism lies in the fact that such funds may be used for broader purposes such as climate change mitigation and adaptation in developing countries.[184] This closely resembles other proposals aimed at establishing a rebate mechanism or a re-channeling of funds to address equity issues. This, however, creates a fairly complex scheme as decisions will have to be made on matters such as: the quantum of such levy; how and who will collect them; the purposes to which the revenues will be applied; and, the beneficiaries thereof. Given the well-known industry rejection of fees and taxes as well as the position of some aviation-oriented States, it is unlikely that this option will ever see the light of day.[185]

The third option envisages an emissions trading scheme.[186] Here, the system would cap the sector's overall international emissions.[187]It would then allocate allowances to the participants.[188] In essence, the allowance is a license to emit a specified quantity of CO_2.[189] The system would also establish

[178] See ICAO, C-WP/13861 at 2.
[179] *Ibid*, Appendix A-1.
[180] *Ibid*.
[181] *Ibid*.
[182] See ICAO, A38-WP/68 EX/33 at 3 (noting that "a simple carbon offsetting scheme would be the quickest to implement, the easiest to administer and the most cost-efficient").
[183] *Ibid* at A-7.
[184] *Ibid*.
[185] See ICAO, MIN 196/7 at 8 (Statement of the UAE) (recommending abandoning consideration of offsetting with a revenue generation mechanism).
[186] See ICAO, C-WP/13861 at 2.
[187] *Ibid*, Appendix A-8.
[188] *Ibid*.
[189] *Ibid*.

compliance periods and would require participants to monitor their emissions.[190] If their emissions should exceed their allowances over a given compliance period, participants must purchase either ECUs or additional allowances.[191] The main difference between this option and offsetting is that under this option, allowances become a negotiable property right.[192] The presence of allowances, however, adds a layer of significant complexity to the scheme.

The fourth option also involves emissions trading but based on a baseline and credit system. Here, instead of allowances, the scheme establishes a baseline.[193] Should a participant emit more than the established baseline, such participant will be required to purchase ECUs.[194] If, on the other hand, at the end of the compliance period a participant's emissions are below the established baseline, the participant may either earn credits or bank them for future use.[195] In establishing the baseline, an efficiency metric may be taken into account.[196] Because of aviation's projected growth trends, it is expected that participants will have to purchase ECUs.[197] Therefore, this option does in fact closely resemble the offsetting scheme. In light of this, the Council ultimately decided to discard this option.[198]

All of these options will require the adoption of monitoring, reporting, and verification systems (MRVs); the establishment of a compliance period and enforcement mechanisms; a determination as to who the participants will be (in other words, whether States or aircraft operators will bear compliance obligations); an assessment of the legal vehicles needed; and, a means for distributing baselines and allocating allowances.[199]

The work of the experts assisting the AHWG sufficiently demonstrated is that all of the options are "technically feasible and have the capacity to contribute to achieving [ICAO's aspirational goals]."[200] The studies have also revealed that the financial impact on the industry is expected – at least for the time being – to be minimal.[201] On the basis of these findings, the 38th Assembly, working under intense pressure to demonstrate leadership and deliver results,[202] finally "[agreed] to develop a global MBM scheme for international

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190 *Ibid*.
191 *Ibid*.
192 *Ibid*.
193 *Ibid*, Appendix B.
194 *Ibid*.
195 *Ibid*.
196 *Ibid*.
197 *Ibid*.
198 See ICAO, C-DEC 196/7 at 2.
199 See ICAO, C-WP/13861, Appendixes A1-9 and B.
200 See ICAO, C-WP/139894; ICAO, C-DEC 197/6.
201 For instance, ICAO estimates that the cost of MBM could represent 0.8 to 1 per cent of the industry's revenues. See ICAO, Assessment of the Impact of Market-Based Measures (MBMs), Council Informal Briefing (11 June 2013) (on file with the author) at 11.
202 See ICAO, A38-18, *supra* note 74, paragraph 19.

aviation." [203] This decision attracted strong endorsement from the industry and no reservations were filed against it.[204] To develop such a scheme, the Assembly instructed the Council to consider a number of factors including: proposals made by industry;[205] the special circumstances of States;[206] the need to explore a route-base and incremental approaches;[207] and, the recognition of fast-growing carriers as well as those who have taken early action (e.g. early movers who have invested heavily in technology).[208] The Assembly also instructed the Council to present a concrete proposal to the 39th session scheduled for 2016.[209] At this time, the Assembly will be expected to adopt a global MBM scheme that will be implemented as of January 2020.

VI. CONCLUSION

Environmental protection was not part of ICAO's original objectives as set out in its constitutional framework. Yet, through the adoption of various strategic objectives, the Secretary General and Council have attempted to gradually incorporate environmental concerns as one of the organization's priorities. It is true, however, that the absence of a specific reference to the environment in the Chicago Convention is problematic, particularly when environment-related initiatives would seem to be in conflict with the convention's overarching goals, such as fostering the development of the sector (i.e., growth). ICAO's governing structure seems to have strengthened the role of the Council. This poses some challenges when the need to engage a broader audience beyond those States that form part of the Council arises - the non-Council member States have much less connection with the organization. The international legal framework *de facto* immunizes fuel used in international aviation from taxation. This prevents the internalization of environmental externalities through the imposition of taxes – arguably one of the easiest ways to address GHG emissions from international aviation. Yet, in spite of all these structural deficiencies, ICAO continues to be the best forum to handle this issue.

In theory, all of these deficiencies could be addressed through the introduction to substantial amendments to the international legal regime. This, however, is extremely unlikely to occur. The Council has already considered a proposal recommending amendments to the *Chicago Convention* and the predominant view was that the septuagenarian instrument still provides an appropriate framework to address current and emerging challenges. For a number of reasons that extend beyond the realm of aviation and climate change

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[203] See ICAO, A38-WP/68 EX/33.
[204] See ICAO, Summary Listing of Reservations to Resolution A38-18, online ICAO <www.icao.int/Meetings/a38/Documents/Resolutions/summary_en.pdf> [*ICAO, Reservations to A38-18*]
[205] *Ibid*, paragraph 19 (a).
[206] *Ibid*, paragraph 20.
[207] *Ibid*, paragraph 21.
[208] *Ibid*, paragraph 22.
[209] *Ibid*, paragraph 19 (d).

issues, this view is not expected to change in the near future.

In this context then, ICAO should explore other alternatives to further engage its membership. Perhaps, this could be done through empowering of its seven regional offices. These should be in much closer contact with its member States. For instance, in an effort to address CAEP's imbalanced membership during the 38th Assembly, Argentina recommended that the regional offices should be much more involved in disseminating the committee's work within their respective regions.[210] Although unnoticed by the vast majority of States attending the Assembly, the Argentinean proposal was targeted at one of ICAO's most acute deficiencies: the disconnection between the organization and those member States that are neither members of the Council nor participants in the technical work of the organization. This is not a problem unique to ICAO. However, a proper resolution of this deficiency will go a long way to facilitate the design and implementation of the global MBM scheme for international aviation in the ultimate analysis.

Ever since the *Kyoto Protocol* enjoined States to address the aviation sector's carbon footprint through ICAO, the organization has been extremely active in exploring alternatives, conducting studies and presenting concrete proposals. The fact that GHG emissions continue to be unregulated is certainly not ICAO's fault, but it rather reflects the unwillingness of its member States to undertake any serious commitments. Obviously, there are a number of exogenous and endogenous factors that explain the lack of political will on the part of member States.

In spite of the enormous difficulties faced, what is clear is that ICAO has made concrete progress. The CO_2 standard is on track for adoption. This will not be a major technological breakthrough but it is a significant step forward. Arguably, the State action plans are also a success story. They are in the process of changing the attitude of member States towards climate change issues. As a result of the State action plans, a large number of States are beginning to address issues involving aviation's climate change impact for the first time ever. In the near future, it will be desirable for the State action plans to become mandatory and also included in the ICAO audits.

The decision by the 38th Assembly to develop a global MBM scheme for international aviation has strengthened ICAO's leadership. Arguably, there is consensus that this is the best way forward to address GHG emissions from international aviation. However, forming consensus on the actual elements of the scheme will not be an easy task. Although the work of the group of experts has already provided a solid starting point for the development of the global scheme, a number of unresolved issues still remain. Tackling these issues will not only require technical and policy considerations, but above all, political decisions.

[210] See ICAO A38-WP/318 EX/110.

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