



AVIATION AND ENVIRONMENT: AN ICAO's REGULATORY APPROACH

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ABSTRACT

The regulatory framework of International Civil Aviation Organization (ICAO) to mitigate the effects of aviation pollution in the environment has been constantly evolving and the prime focus over the last few years of the International civil aviation community. Aviation has become a lifeline of every nation but it is also contributing to the environmental degradation. This article proposes to examine the various standards and steps taken by the ICAO to reduce aviation pollution internationally and to suggest some plausible solutions too.

KEYWORDS : ICAO, Chicago Convention, Aviation and Environment.

INTRODUCTION

Aviation is the most viable mode of transportation in the modern world. More than two billion people use aviation today for their commercial or personal needs which means aviation is contributing to the development to the world economy. The International Air Transport Association (IATA) in 2007 projected that consistent growth in all sectors of aviation industry over the next five years. But Aviation also contributes global greenhouse gas emissions, noise pollution, degrading air quality and creating contrails in the upper atmosphere. Aviation emits 0.7 billion tones of CO₂ annually, that is approximately 2.6% of the global greenhouse gas emissions. Aviation's contribution to climate change is two to four times greater than these CO₂ numbers suggest, because greenhouse gases are more potent when released higher up in the atmosphere. Taking into account non-CO₂ effects, aviation would account for some 5% of total global warming by 2050. And it must be noted here, that CO₂ emission is different from emission on the ground, as the former emitted directly in higher atmosphere and hence, lead to higher warming global warming potential.

International Civil Aviation Organization (ICAO), which is a regulatory authority for aviation globally, brought out certain Standard and Recommended Practices (SARPs) to mitigate pollution, controlling noise pollution and greenhouse gases mitigation. ICAO has set up an Aviation Environment Protection (CAEP), which works for the environment protection, and taken some other initiatives to mitigate the impacts of pollution caused by aviation activities.

Aviation Pollution:

1) Aircraft Noise:

The ICAO Environmental Report of 2007 (ENV Report) notes that aircraft noise is becoming the most important cause of adverse population reaction related to the operation and expansion of the aviation industry, whether it is infrastructural or related to air traffic.¹ But the noise levels of aircrafts have gone down to 75% quieter over the past two decades². ICAO has identified four major areas of concern for noise mitigation of aircrafts:

- Mechanism to reduce noise at source: It means that newly manufactured aircraft has to comply the parameters specified in the SARPs regarding aircraft noise, Annex 16 Vol. I to the Chicago Convention.
- Land-use planning and management: This approach means the land use for airports must be properly used.
- Noise abatement operational procedures: Operational tools and decisions should be made to abate noise of aircrafts as per the procedures of the ICAO.
- Operating restrictions: ICAO has adopted called the 'Balanced-Approach', to deal with the problem, through its specialized secretariat in the Environmental Unit (ENV). The balanced approach recommends that first the other possible mechanisms should be exhausted, prior to taking resort to this one. It limits access to airports at certain specific period to prohibit movement at a particular area. CAEP rec-

ommended ICAO in 2001 to adopt a more stringent noise standard which imposes a cumulative increased stringency of -10 dB relative to current limits. In 2006 another standard was applied to newly certificated airplanes and to airplanes for which re-certification is requested. CAEP in Annex 16 drafted a noise certification scheme for light helicopters are also noteworthy.

2) Greenhouse Gas Emissions:

Intergovernmental Panel on Climate Change's (IPCC) Report on Climate Change³ states that there is an urgency to deal with the problem of greenhouse gas emission from aviation as this emissions will increase in near future.

ICAO has adopted Annex 16 Vol. II and since then Aircraft Emission became a part of ICAO's work against aviation pollution under the guidance of CAEP in collaboration with UNFCCC and IPCC. CAEP sets emissions standards for oxides of nitrogen, carbon monoxide and unburned hydrocarbons. The latest review of medium- and long-term technology goals for NO_x (Independent Experts NO_x Review and the Establishment of Medium and Long Term Technology Goals for NO_x), was published in 2008. CAEP also has put into place a comprehensive database of aircraft jet engine emissions certification data. CAEP also produced Circular 303, which provides the best standards in terms of fuel consumption minimizing, most of which have been a considerable part of industry dialogue, as a collective method of both targeting savings on fuel costs and bettering technologies.⁴

3) Formation of Contrails:

Contrails are line-shaped clouds or 'condensation trails,' composed of ice particles that are visible behind jet aircraft engines, typically at cruise altitudes in the upper atmosphere. Aircraft Engines emit water vapor, carbon dioxide (CO₂), small amounts of nitrogen oxides (NO_x), hydrocarbons, carbon monoxide, sulphur gases, soot and metal particles formed by the high-temperature combustion of jet fuel during flight. Thus, future aircraft technologies will need to be improved to tackle the problem of contrail formation.

Role of ICAO:

International Conventional on civil aviation, 1944⁵ (also known as Chicago convention) considered as the constitution of the ICAO, does not mention environment protection as a mandate for ICAO in Article 37. Article 37 is the mandate given to ICAO to draft standards and practices in aviation across the globe. Article 37 states that: "*Adoption of International Standards and Procedures - Each contracting State undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve aviation and its activities. ICAO to this end, adopts and amends from time to time, as may be necessary, international standards and recommended practices and procedures. This is the mandate of ICAO.*"

Article 37 and all other relating annexes can only be read within the consonance with article 38 which states: "*Any State which finds it*

impracticable to comply in all respects with any such international standards or procedure, or to bring its own regulations or practices into full accord with any international standard or procedure after amendment of the latter; or which deems it necessary to adopt regulations or practices differing in any particular respect from those established by an international standard, shall give immediate notification to the International Civil Aviation Organization of the differences between its own practice and that established by the international standard. In the case of amendments to international standards, any State which does not make the appropriate amendments to its own regulations or practices shall give notice to the Council within sixty days of the adoption of the amendment to the international standard, or indicate the action which it proposes to take. In any such case, the difference which exists between one or more features of an international standard and the corresponding national practice of that State.”

The first standard under the Convention was published in 1971. The Annex 16 for noise came out of the 16th session of the ICAO Assembly. But it was in the 1970's and at the 18th session of the ICAO Council, the standards for greenhouse gas emissions found place in its framework. ICAO finally established the Committee on Aircraft Engine Emissions (CAEE) in 1977 and in 1983 CAEP had superseded the Committee on Aircraft Noise (CAN) and the CAEE. CAEP was to become the focal point of all environmental protection initiatives of ICAO with 22 members including states, intergovernmental organizations, and international organizations. CAEP focuses on the mitigation of noise and emissions by: maintaining effectiveness and reliability of certification schemes from viewpoint of technical feasibility; economic reasonableness; and environmental benefit to be achieved. In 2007, the ICAO Assembly requested the Council, through resolution A36-22, to continue the development of policies, which provide ways to limit or at least achieve the reduction of adverse impacts of emissions on the environment, and to develop concrete proposals and provide advice to the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC). The said resolution focuses on operations in environmental protection and attempted to strengthen the SARPS that regulate noise and engine emissions. The Annexure K specifically mentions the ICAO Council to:

A) Continue to take initiatives to promote information on scientific understanding of aviation's impact and action undertaken to address aviation emissions and continue to provide the forum to facilitate discussions on solutions to address aviation emissions; and

B) Continue to cooperate closely with the IPCC and other organizations involved in the assessment of aviation's contribution to environmental impacts on the atmosphere.

In pursuance to the guidelines, the group on International Aviation and Climate Change (GIACC) was formed by ICAO to develop and recommend standards to ICAO. The GIACC has identified three goals that need to be tackled: a) goals and timeframes b) a framework of measures to limit or reduce green house gas emissions; and c) evaluating the progress in ICAO.

The Strategic objectives of ICAO Between 2005-2010 have been the Development, adoption and promotion of new or amended measures to:

- A) Limit or reduce the number of people affected by significant aircraft noise;
- B) Limit or reduce the impact of aircraft engine emissions on local air quality; and
- C) Limit or reduce the impact of aviation greenhouse gas emissions on the global climate;
- D) Cooperate with other international bodies and in particular the UNFCCC in addressing aviation's contribution to global climate change.⁶

EU/ETS

European Union (EU) has resolved to incorporate aviation into its Emission Trading System (ETS) in 2012. ETS mechanism imposes emission limitations on airlines. It not only applies to carries in the EU, but also to foreign carriers who are flying in and out of the EU. The cap for aviation will be 97% of their levels in 2004-06, there will be periodic decrease of this cap starting 2013. For the first year, airlines will get close to 85% of their emission allowances at no cost. Subsequent reduction to this level will begin from the second year of the implementation of the scheme. There are provisions to provide operators on low traffic routes or where emissions are low (like that of some developing countries) with exemptions from the scheme, but non-compliance by any other operator would incur a ban on their operation. According to EU data from 2008, the ETS resulted in an emissions reduction of 3%, or 50 million tons. At least 80 million tons of “carbon offsets” were bought for compliance with the scheme.

CONCLUSION

ICAO's regulatory framework fails to cover the issue of Environmental degradation. It is lacking in the implementation of its regulations at national level as it is unable to apply the standards uniformly over all states. So far now Amendment to the convention seems to be the potent solution for the enforcement of SARPs and which would make non-compliance of the same a violation of the treaty rules. However, in the absence of these rules, EU/ETS could also be a logical solution. Economic responsibility can be placed on the different sectors of the aviation industry by invoking the scheme of ETS.

REFERENCES

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