

### **Abstract of Presentation**

The aviation industry enjoys rapid growth and has increasingly become a vital and integral part of contemporary life. Such growth is likely to continue unless adverse decisions are taken that may thwart its momentum. Among the more significant decisions that could have an impact on the civil aviation development are those related to environmental protection.

ACAC's position may be summed up as follows :

1. Environmental problems differ between regions as between airports.
2. A guiding principle should be adopted requiring polluters to pay the price of their pollution; he who pollutes more must pay more.
3. Efforts should be focused on the application of more stringent noise certification requirements for the future production of aircraft and engines. Operational restrictions or any other actions for the phase-out of Chapter 3 aircraft or affecting their capacity should be avoided.
4. Solution of a problem in one particular region should not be at the expense of another region.
5. The principle of reciprocity should be adopted in respect of charges.
6. Account should be taken of the situation of the developing countries and their ability to apply any measures that may eventually be adopted; they should not be required to carry any financial burdens that are beyond their means.
7. Emphasis should be placed on the need for ICAO to remain the only authority in determining the regulations and criteria relating to aeronautical environmental issues.

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*He is now Director General of the Arab Civil Aviation Commission (ACAC). In this capacity he has been following all issues relating to civil aviation including environmental issues. In October, he played a major role at the Conference held in Cairo on this subject.*

*Mr. Daoudi possesses vast experience and knowledge in this field. Over the past 20 years, he attended most civil aviation events at the Arab, African and international levels; especially meetings held under the auspices of ICAO and the ICAO Assembly. He has been involved in the adoption of environment-related decisions. During the same period, he was a member of the Executive Board of the Arab Civil Aviation Commission.*

## Colloquium on environmental aspects of aviation

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### *Environmental issues in civil aviation activities The position of the developing countries*

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#### **Introduction**

The aviation industry experienced rapid growth during the second half of the twentieth century, as aviation has increasingly become a vital and integral part of contemporary life. Such growth is likely to continue unless adverse decisions are taken that may inhibit its momentum. Among the more significant decisions that could have an impact on the development of civil aviation are those related to environmental protection. Over the past few years, there have been growing concerns about the environmental impact of civil aviation; these have revolved specifically around two main issues, namely noise and aircraft engines emissions. The latter are perceived to produce gases that may have significant adverse effects on global climate change.

To address such problems, ACAC, as you all know, has established a special committee on the protection of the environment whose objectives include coordination at the international level for the solution of environmental problems caused by aviation, within the framework of ICAO in order to insure harmony and to serve the interest of member states.

In addition to CAEP, which is a committee of the ICAO Council, there are other international regional and non-governmental environmental organizations which exert direct and indirect pressure on aeronautical decision-makers and urge them to take decisions pertaining to civil aviation and the environment. Accordingly, environmental pressures can thwart the growth of air transport, at a time when we should try to strike a balance between the protection of the environment on one hand and the development of civil aviation on the other, and endeavour to prevent the environmental policies from restricting the development of air transport.

## Noise

Based on the recommendations of the Montreal Meeting (November-December 1969), to address the subject of aircraft noise in the vicinity of airports and in addition to the amendments introduced by Contracting States, Annex 16 was adopted and was named "Aircraft Noise" on April 2<sup>nd</sup>, 1971.

Jet aeroplanes are divided into two strictly defined levels contained in the standards of Annex 16 – Part I, of 1988. Chapter 2 includes the standards applied on jets aeroplanes designed before October 6<sup>th</sup> 1977, and Chapter 3 includes more stringent standards for aircraft designed after that date. Although the noise standards were designed to certify new aircraft – in other words they were positive stands – they were used as criteria to impose restrictions on the operation of aircrafts in airports affected by noise.

### Coordination for Chapter 1 aircraft

In the early 1980's, certain states began to consider imposing restrictions on the operation of aircraft on the basis of their noise levels, the United States was the first to espouse this principle. Thus, there was talk about withdrawing non-noise certified aircraft, including the first generation jet aeroplanes, such as Boeing-707, DC-8 and the early types of Boeing 737-100. This United States move was followed by a European move to take measures against the same aircraft types by prohibiting their operations in Europe.

The ban on what has been commonly known as phase one aircraft, which are actually non-noise certified, did not have any profound economic impact on those United States and European airlines for the following reasons:

1. Only a limited number of such types actually existed, and their production had ceased for a long time.
2. It was possible to market such aircraft among developing world airlines, the business community and the military establishments for various uses (including their conversion into air refuelling aircraft as well as early warning and cargo planes, etc.).
3. It was possible to either convert some aircraft in this category (such as DC-8's) or fitting the engines of others with hush kits (Boeing 707).

### Coordination for Chapter 2 aircraft

As of the second half of the 1980's, Europe and the United States started to impose restrictions on the operation of Chapter 2 aircraft, although this matter was considered more problematic than the first for the following reasons:

1. The number of planes that come under this noise category is quite large particularly those operated on short and medium routes.

2. The production of such aircraft has stopped only recently which means that any ban on their operation will take away a significant part of their operational life.
3. The residual values of such aircraft constitute part of the financial assets of the airlines on which they can rely for the purchase of more modern aircraft.
4. The largest number of such aircraft is held by European and American airlines, which made those who took that decision hesitant to take it in the first place in view of its repercussions on some of the economic sectors represented by their airlines.

In 1990, the ICAO Assembly decided unanimously to adopt a global policy regarding the imposition of operational restrictions on Chapter 2 aircraft. The resolution was a compromise between the interests of developing and developed countries. It took into consideration the interests of the environment and those of civil aviation. The resolution allowed the states whose airports were suffering from noise to phase out Chapter 2 aircraft as of April 1<sup>st</sup>, 1995 with a view to the total phase-out of such aircraft by April 1<sup>st</sup>, 2002. Europe granted developing states an exemption from the ban on the flight of such aircraft to Europe after April 1<sup>st</sup>, 1995 and until 2002 on condition that the age of the aircraft should not exceed 25 years. Aeroplanes that had been manufactured earlier than 25 years ago become automatically subjected to the ban.

After the adoption of the resolution, many Contracting States began to implement plans for the phase out of Chapter 2 aircraft. This generally reduced noise in the vicinity of airports despite the growth of air traffic. The resolution called upon Contracting States not to impose new operating restrictions on Chapter 3 aircraft. However, Europe claims that the strong traffic growth in the next decade will have an impact on it, and that noise will undoubtedly increase around major international airports located in densely-populated areas, despite the total phase-out of Chapter 2 aircraft in 2000.

That is why we see now a trend towards the imposition of operational restrictions on Chapter 3 aircraft, with the objective of phasing out some Chapter 3 aircraft from service, on the argument the traffic growth will bring back the old noise levels which existed before the decommissioning of Chapter 2 aircraft, unless new measures are taken to impose more stringent restrictions on noise certification for Chapter 3 aircraft. From this we conclude that the policy of imposing restrictions on the operation of aircraft on noise considerations is a continuous policy. But, we wish to refer in this regard to the need to take into consideration the age of the aircraft and the future technological capabilities.

## **Noise determinants**

Noise can only become a problem in the presence of the following determinants together:

(1) the source; i.e. the noise caused by aircraft, (2) traffic density at the airport, (3) the vicinity of the airport to populated areas, (4) public reaction to noise, if any.

In the absence of all these determinants, noise cannot be considered a problem.

## **Aircraft noise is a local problem**

On the basis of the above four determinants, noise may be considered a local problem, with varying intensity from one region to the other and even from one airport to the other. It is a more pressing problem in Europe than in other parts of the world in general and the developing country regions in particular.

## **Most developing country airports do not have a noise problem**

Going back to the four noise determinants, we may raise the following question: is noise a problem in the developing world, when we know that air traffic density in airports of the developing countries is much lower than in Europe and that most airports of the former are not in the vicinity of populated areas, as is the case in Europe and North America. Public reaction to noise is virtually non-existent in the developing countries. In addition, there are vast areas in most developing countries which enable them to build new airports if necessary unlike Europe which does not have available areas for building new airports or expansion of existing ones.

## **ACAC proposal to CAEP/5**

At CAEP/5, several proposals were made by ACAC which represent the opinion of its member States and, as mentioned to some members of CAEP, they also represent the opinion of developing States in general. These are as follows:

1. ICAO should be considered the sole reference framework for determining the regulations and criteria relating to civil aviation.
2. The need to avoid taking unilateral actions that would be prejudicial to the other side and to avoid the solution of a problem of one particular region at the expense of another.
3. Account should be taken of the situation of developing countries and the extent of their ability to apply any measures that will be imposed on them, without requiring them to carry any financial burdens that are beyond their means.

4. The application of more stringent measures with regard to noise certification should be directed to the future production of aircraft and engines, and any new actions affecting aircraft, which are now in operation, should be avoided.
5. No Chapter 3 aircraft should be phased out.
6. The principle of reciprocity in respect of environmental charges related to emissions or noise should be adopted.

#### **First: stringency of noise standards**

It is well known that CAEP recommended the amendment of Annex 16, Volume I to increase noise stringency by a total of 10 decibels over Chapter 3 limits, without allowing for any trade-offs, and the margins of certification levels at any two points of measurement should be at least 2 decibels. This recommendation will be applied to aircraft types to be certified after January 1<sup>st</sup>, 2006. Such stringency in the certification of new aircraft will either reduce noise or maintain their levels albeit in the long run. We wish to underscore the importance of using the new standards for the purpose of certification and not for any other purposes like the imposition of operational restrictions designed to phase out some aircraft, as we have seen in the case of Chapter 2 aircraft.

#### **Second: Land use**

ACAC underlines the importance of the best use of land around the airports, by promulgating strict laws and regulations against any violations particularly in areas adjacent to airports. There is also a need for building new airports in areas far from population centres and the passing of laws banning housing development in the vicinity of airports. As for the airports surrounded by populated areas, an effort should be made to prevent population growth and also to seek to evacuate them to other location if possible. Other measures should be taken such as noise isolation techniques and the establishment of noise barriers and noise protection in the engine test areas.

It is worth mentioning that land planning decisions for areas located around airports do not usually fall within the purview of airport authorities. It is rather the responsibility of local authorities, even if such decisions have repercussions that go beyond the local level.

It is also common knowledge that many airports around the world are facing excesses such as random and unauthorized housing construction. Such excesses are all the more severe in developing countries compared to developed countries. Therefore the management of land use of areas around the airports should be considered a strong tool to limiting population growth and unplanned housing that could restrict airport operations and increase the number of people affected by the problem of noise.

### **Third: Imposing operational restrictions on aircraft (Phase-out)**

With regard to the imposition of operational restrictions on aircraft, which is considered a basic element in the balanced approach programme, we hope that such measures should be used only after the three other types of measures are exhausted (i.e. the reduction of noise at source, the establishment of operational noise abatement procedures, and the optimal land use of areas in the vicinity of airports). We would like to draw attention to the situation of developing countries which are not responsible for creating the problem. These countries have encountered major difficulties in the phase out of Chapter 2 aircraft which still constitute 26 percent of the fleets of Arab States for example. Thus any move to phase out certain Chapter 3 aircraft will not be accepted by the developing countries as it would impose major economic difficulties on them. To give airports discretionary flexibility will adversely affect the operational potential of developing country fleets, and will thus be unacceptable to those countries. Therefore, we emphasize the importance of seeking to improve the new technologies and refraining from the imposition of any operational restrictions on Chapter 3 aircraft. States that are sensitive to the question of noise should heed the principle that the polluter should pay the price of the pollution, a principle to which we add another expression namely: whoever causes more pollution should pay more. At the same no separation should be made between domestic and international flights, as the effects of the former flights on environmental questions can not be separated from those of the international flights even though they may be easier to solve.

It is sufficient to take a glance at the study conducted by the Forecasting and Economic Analyses Support Group of ICAO on the economic evaluation of noise policy options, a study that demonstrated the distribution of international passenger and cargo fleet at the end of 1999. It also gives us an idea about the share of developing country fleet worldwide:

Distribution of passenger aircraft is as follows:

1. The U.S. and Canada: 42 percent
2. Europe: 27 percent
3. Asia and the pacific: 18 percent
4. Africa and the Middle East: 6 percent
5. Latin America: 6 percent

With regard to cargo aircraft they are distributed as follows:

1. U.S. and Canada: 71 percent
2. Europe: 11 percent
3. Asia and the pacific: 8 percent

4. Africa and the Middle East: 6 percent
5. Latin America: 4 percent

### **Operational measures to reduce noise**

As long as such measures do not run counter to air safety and as long as they serve environmental protection, they should be continued with great caution and without jeopardizing aviation safety.

### **Charges**

Noise or emission charges should be fair and targeted. They should be directed towards the protection of the environment and they should be based on reciprocity.

### **The influence of Environmental Organizations on the political decision-making process**

In recent years the number of environmental organizations, federations, associations and forums has increased at the local, popular and international levels. There are exerting pressures on their governments to adopt legislation and to impose controls and restrictions on certain industrial and development activities affecting the environment. Naturally air transport is one of the activities that are considered by such organizations and associations as a source of environmental pollution. Many environmental organizations, particularly in Europe, have gained special weight in exerting pressures which are taken into consideration in European parliaments and which have a bearing on decision makers and on the nature of their decisions. The Green Party has acquired special influence in these areas.

Environmental non-governmental organizations operating at the local and national levels have exerted pressures through their governments on international environmental organizations seeking adoption of policies and programmes which are consistent with their own objectives. ICAO's concern over these developments led it to look into its relations with the UN bodies responsible for formulating policies that have relevance to civil aviation. Among the special concerns has been the risk that States will find themselves assuming commitments in other fora, that may be inconsistent with the commitments and policies agreed upon by such States within the framework of ICAO. Therefore, there is an urgent need to coordinate between the organizations concerned with the protection of the environment and the competent organizations that have responsibility in every sector at the local, regional and the international levels. This will prevent duplication of decisions and prevent any contradictory commitments. We should not forget the need to achieve a balance between the development of civil aviation on the one hand and protection of the environment on the other.

### **Conclusion**

1. The Arab Civil Aviation Commission represented by its member States understands the position of States whose airports are affected by noise, countries should therefore understand the position of developing countries which are less affected by noise.

Random housing construction for example causes a bigger problem for the latter countries. Solution of one region's problem at the expense of another should be avoided.

2. Developed countries are seeking to increase traffic to their airports while at the same time seeking to reduce or maintain current noise levels. In their quest to solve this contradictory problem, they are resorting to solving it at the global level and involving States that are not suffering from the noise problem to the same degree. Traffic growth in the latter countries will be much less.
3. In any environmental study. Domestic operations should be taken into consideration.
4. Caution should be observed when stringent operational restrictions are imposed on Chapter 3 aircraft, particularly if such stringency would lead to the phase-out of some types of currently operational aircraft. This way no one will interpret the stringency as a commercial rather than an environmental decision, as the developing world will be obliged to purchase new aircraft from countries that are essentially behind the imposition of such restrictions.
5. It is necessary to consider ICAO the sole authority in setting criteria and regulations pertaining to civil aviation.
6. Account should be taken of the situation of developing countries and their ability to apply any measures that may be adopted; they should not be reacquired to carry any financial burdens that are beyond their means.
7. The application of measures should be directed to the future production of aircraft and engines and no new actions should be taken that affect the aircraft which are now in operation.
8. No unilateral actions should be taken that would be detrimental to other parties.
9. A balance should be struck between environmental protection on the one hand and the development of civil aviation on the other, and the environment should not be stumbling block in the way of civil aviation development.
10. The principle of reciprocity should be adopted in respect of environmental charges to be imposed on aviation and its operation.