

Measure 22: Community framework for airport noise management

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Policy package:

3D: Air transport safety, quality and environment

Measure 22:

Community framework for noise charges and introduction of noise-related operating restrictions at Community airports

What is the problem being addressed ?

International measures to manage aircraft noise are agreed at the International Civil Aviation Organization (ICAO). In 2001 ICAO formally introduced the concept of so-called “**Balanced Approach**” to noise management. This consists of identifying the noise problem at an airport and subsequently analysing the various measures available to reduce noise through the exploration of four principal elements: i) *reduction of noise at source* (i.e. the effect of the technical standards to limit noise that ICAO promulgates for aircraft and engine design. These standards are referred to by Chapter number, the current standard being “Chapter 3”. The “Chapter 4” standard will formally apply to all new aircraft designs from January 2006); ii) *land use planning and management* to minimize the population affected by aircraft noise by land-use zoning around airports and avoiding where possible incompatible land uses such as residential areas; iii) *noise abatement operational procedures* aimed to reduce noise impact by flying aircraft in the quietest manner consistent with safety; and iv) *operating restrictions* on aircraft that range from limiting or prohibiting their operation at sensitive times (e.g. at night) to in extremis banning the noisiest types of aircraft altogether.

ICAO also recognizes that airports with serious noise problems may need to implement *noise charges*, recommending that they should be non-discriminatory and designed to recover no more than the costs applied to noise alleviation or prevention measures. The ICAO Airport Economic Manual (Doc 9562) gives advice on determining the cost basis for noise related charges.

The measures fit in the frame of the 6th Community Environment Action Programme, requiring measures reflecting the full environmental costs in the price of transport.

Measure’s costs and/or benefits:

Noise-related operating restrictions have been introduced with the adoption of Directive 2002/30EC (see more details in the box below).

Legislative implementation at the EU level:

The importance of noise problems in the EU has led the European Parliament and the Council to endorse two Directives:

- Directive 2002/49/EC relating to the assessment and management of environmental noise. This Directive applies to environmental noise to which humans are exposed, ruling about the need to determine level of exposure to environmental noise through elaboration of noise mapping by methods of assessment common to all Member States (deadline 30th June 2007 for agglomerations with more than 250000 inhabitants and for major roads, railways and airports). It also establishes the obligation to make all this information available to the general public in a clear, comprehensive and accessible manner. It finally requires the publication of action plans in the light of noise mapping results.
- Directive 2002/30/EC on the establishment of rules with regard to the introduction of noise related operating restrictions at Community airports. This Directive formally requires Member States to adopt a Balanced Approach to managing noise at their airports and lays down procedures for the introduction of operating restrictions (the fourth element of ICAO’s agreement) in a consistent manner at airport level. The Directive should have been adopted formally by the 15 Member States issuing national laws, regulations and administrative provisions by 28 September 2003 at the latest. Of the 24 States to which the Directive applies, 12 had completed transposition at end July 2004 and the remainder were still in process of effecting transposition. Infringement proceedings have been instigated in appropriate cases.

The first Directive applies to noise from all major transport modes (and industry). The second one is instead specific to Community airports. A key element of this second Directive is that Member States will now be able to use a range of measures, including operational restrictions, to reduce noise if the assessment procedure confirms that such action is justified.

Currently Community airport charging systems differ from one Member State to another. There may also be differences within Member States. However, a proposal for a Directive of the European Parliament on the establishment of a Community framework for noise charges on civil subsonic aircraft (COM 2002/683

final) has been withdrawn because of lack of interest among Member States.

What are the objectives ?

The objectives of Directive 2002/30/EC are:

- to lay down rules for the Community to facilitate the introduction of operating restrictions in a consistent manner at airport level so as to limit or reduce the number of people significantly affected by the harmful effects of noise;
- to provide a framework which safeguards internal market requirements;
- to promote development of airport capacity in harmony with the environment;
- to facilitate the achievement of specific noise abatement objectives at the level of individual airports;
- to enable measures to be chosen from those available with the aim of achieving maximum environmental benefit in the most cost-effective manner.

This clear set of objectives can be monitored with output and outcome indicators as described in the boxes below.

Interactions with other WP measures:

Noise-related restrictions at Community airports also have objectives that are clearly interrelated with those of Measure 20, i.e. promoting the development of airport capacity in harmony with the environment.

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Output indicators:

The key output indicator should be the number of airports with implementation of local measures with explicit reference to or legal base in Directive 2002/30, or charging schemes in accordance with the proposed framework on noise classification.

The output of noise-related operating restrictions could be monitored considering not only the number of airports but also the number of measures intended to reduce the impact of aircraft noise put in place in at least a representative sample of Community airports within the scope of the Directive (i.e. those with more than 50.000 movements per year on average), for reasonable periods before and after the entering into force of the Directive. As mentioned in the recent review of air transport policy instruments undertaken by the EU research project SPECTRUM (see Deliverable 3 – Annex for Task 6.1, forthcoming), Boeing has undertaken a special study about noise for a sample of 590 airports around the world (<http://www.boeing.com/commercial/noise/flash.html>). The purpose of this web site, updated till October 2003, is to track and report airport noise restrictions and government noise regulations for airline customers. They identified 13 different types of measures intended to reduce the impact of airplanes noise. The table below gives a summary of Boeing results.

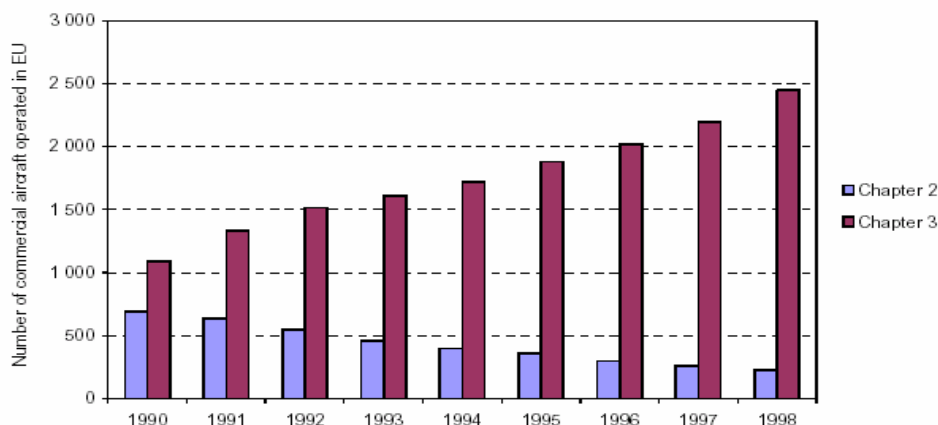
Measures	% of airports in the sample	Description
Auxiliary power units (APU)	15	The use of APUs is restricted
Curfews	39	Take off and landing operation are prohibited for certain periods of times (usually at night)
Engine run-ups	59	Engine run ups are restricted
Noise abatement	68	A set of measures aimed to reduce or redistribute noise
Noise budgets	2.4	A noise quota is established for the whole airport
Noise limits	15	Noise limits are established for different areas around the airport
Noise monitors	33	Implementation of a noise monitoring system
Operating quotas	7.4	The number of operations are restricted
Preferential runways	59	Some runways are given preferential use because its utilization implies a lower impact of aircraft noise
Stage 2 restrictions	22	The access of Chapter 2 aircraft to the airport is restricted
Stage 2 phase outs	9	The access of Chapter 2 aircraft to the airport is prohibited
Stage 3 restrictions	7.8	The access of Chapter 3 aircraft to the airport is restricted
Noise charges	21	Implementation of noise charges
Emission charges	1.5	Implementation of engine emission charges

Source: SPECTRUM elaboration with Boeing data; "Stages" are a US term and practice, and have no formal meaning in EU

The table shows that most frequent measures intended to reduce noise are general abatement procedures with restrictions on run ups and the utilization of preferential runways. They are followed by the implementation of curfews and noise monitoring systems.

Another output indicator related to Measure 22 is the number of commercial aircraft by noise certification standards in the EU. In 1998, Chapter 3 aeroplanes made up over 90% of the EU15 fleet, Chapter 2 about 8%, chapter 1 only 0,1% (two aircraft) and supersonic aircraft (Concorde) 0,5%:

Number of commercial aircraft by noise certification operated in the EU-15, 1990-98



NB: Chapter 1 (aircraft types certified before 1970) is not included in the graph as only two aircraft were operating in the EU in 1998. Chapter 2 aircraft refers to types certified between 1970 and 1978. Chapter 3 aircraft refers to types certified after 1978. Supersonic aircraft (Concorde) are not included in the graph since only 13 aircraft were operating in the EU in 1998.

Source: European Commission, 1999.

Most of the aeroplane fleet thus complies with the most stringent EU noise standards. The phase out of Chapter 2 aircraft will further improve the average noise performance of the fleet.

Outcome indicators: intermediate impacts on transport markets

Among other things, the Directive on noise-related operating restrictions at Community airports aims to safeguard internal market requirements and avoid distortions of competition that could arise from applying different operating restrictions rules for the same types of aircraft at different airports in the Member States. The Directive makes special provision in respect of any impact there might be on aircraft registered in developing countries.

Outcome indicators: final impacts on transport users and non users

An explicit objective of the Directive on noise-related restrictions at Community airports is to facilitate the achievement of specific noise abatement targets at the level of individual airports. Therefore, the main outcome indicators to be considered are noise abatement measurements taken at specific airports and their effect in terms of reduction in number of people affected by aircraft noise.

EU-wide data on exposure to aircraft noise is currently the least reliable, but an estimate of the number of people exposed to more than 55 L_{dn}dB around selected airports presented in the table below gives an indication of the scale of the problem. These airports differ considerably in magnitude of traffic, fleet mix and lay-out in respect to noise-sensitive areas, and can therefore provide a representative basis.

Number of people exposed to noise level over 55 L_{dn}dB around selected airports

Airport	Number of people
Heathrow; London	440 000
Fuhlsbüttel, Hamburg	123 000
Charles de Gaulle, France	120 000
Schiphol, Amsterdam	69 000
Kastrup, Copenhagen	54 000
Barajas, Madrid	33 000

Source: M+P, 1999